

COMPUTER WEEKLY

Vol. 26 No. 649
Thursday, April 19, 1979

Deputy Editor
Tony Higgins 01-261 8696

Advertisement Manager
Harry Hutton 01-261 8355
01-261 8503

Class Ad Manager
Brian Durrant 01-261 8597
IPC Division of Electronic Press Ltd,
Dorset House, Stamford Street,
London, SE1 9LL
Telephone 01-261 8000
Telex/Tel: 28137 BIPERS G

Branch Offices:
Birmingham: 202 Lynton House, Walsall
Road, Birmingham B28
Telephone 021-726 4838
Manchester: Station House, Talbot Road,
Salford, Manchester M6 2JZ
Tel: 061-872 4211

New York: 205 East 42nd Street, New York,
NY 10017
Tel: (212) 967 3989; Telex 421710

Published weekly on Thursdays

Registered at the Post Office as a
newspaper. Price per copy 18p

IPC Business Press Ltd 1979.

CIRCULATION INQUIRIES
Requested Readership: 01-837
3636
Subscriptions: 0444 59188

Members of Computer Weekly staff
may be contacted directly on the
extensions listed below. Other de-
partments in Dorset House may be
obtained by dialling (01) 261 8000.

EDITORIAL
Keith Jones 261 8346
Tim Palmer 261 8031
Peter Howitt 261 8303
Rory Johnston 261 8025
Martin Banks 261 8008
Robin Webster 261 8170
Dermot Allen 261 8043
Donald Tennant 261 8719
Mike Morris 261 8042
Don Mitchell 261 8042
Chris Young 261 8043
Nancy Packer 261 8543
Judith Morris 261 8044

ADVERTISING
Display 261 8658
Chris O'Hara 261 8743
Lloyd Collins 261 8293
Steve Bass 261 8106
Ian Carter 261 8106
Manchester 061-872 4211
Harry Allan
Birmingham 021-366 4836
Ken Parrott

Classified
Chris Pater 261 8025
Eddie Farrell 261 8087
Mark Williams 261 8019
John Pater 261 8008
Ken Wallford 261 8043
Nancy Gibbs 261 8174

Manchester 061-872 4211
Owen Kelly

Birmingham 021-366 4836
Paul McGowan

Production
David Abbey 261 8018
Peter Regie 261 8016

Computer Weekly has a circulation each
week of over 82,000 including the high-
est fully requested circulation in the UK.
The international edition, which is
published 10 times a year has a circula-
tion of over 84,000.

Computer Weekly is sold from a charge to the
following categories in the UK and the sales
representatives, namely: advertising, man-
agement services executives, and ser-
vants responsible for computing,
management/computer consultants, lecturers
and teachers, DP Managers/supervisors, ap-
plicants, multiple/dual users, programmers,
operators, computer scientists, and engineers.

Controlled Circulation Department: IPC Business
Press Ltd, 205 East 42nd Street, New York, NY 10017.
Tel: 01-261 8000. Subscriptions for outside the UK:
US \$14.95 per copy. Single copy \$1.50. US \$14.95
overseas. Cdn \$18.00. Canada \$20.00. Airmail rates on
request.

ISSN 0010-4787

ADMIRALTY SURFACE WEAPONS ESTABLISHMENT PORTSDOWN, GOSHAM, HANTS.

A MULTI-ACCESS DIGITAL COMPUTER

is required by the Design Division of ASWE. The proposed system will be
used for the analysis of structures using the PAFEC finite element package
and the PAFEC interactive graphics system. It will be used for the
generation of 2 and 3 dimensional drawings using SINO-F.

Applications for copies of the Operational Requirement quoting CEH/33
should be made to:
General Computer Agency
Room 223, 25, Abchurch Lane, London EC4N 3DF
Tel: 01-778 2231. Mailing address: 25, Abchurch Lane, London EC4N 3DF
Responsible must be received by 24 May, 1979.

COMPUTER WEEKLY

WE'VE said it before. And no
doubt we'll say it again: "Com-
puter education in secondary
schools is too important to be
left to educationists."

The much-vaulted autonomy
which the British educational
system accords to individual
schools and education authori-
ties may be an important
safeguard for academic freedom,
but there comes a time when a
measure of central direction
may be desirable, if not essential.

That time is long past as far as
computer education is con-
cerned. We can no longer afford to
have generations of school-
leavers going out into the world
in total ignorance of computers
and their influence — for good
and evil — on the society in
which we live.

That this is beginning to be
appreciated in high places is
evident from government
recommendations that a central
agency should be established to
administer a £12 million pro-
gramme for promoting the study
and use of microcomputers in
schools (CW, March 15) and
from the report of the Science
Research Council (CW, April 12)

which states that central co-
ordination of developments in
schools and colleges, with the
appointment of a programme
director, must be established by
the Department of Education
and Science, if the challenge of
the microprocessors is to be met.
Far from this being an in-
sidious attempt to subvert

FOCUS

Guide to the DP hustings

FOR DP management, choosing
your MP could well make a
welcome break from choosing a
new computer. Making the right
or rather, correct — decision
in both cases, will affect the
DPM's life for the next four or
five years.

Unlike most other industries,
computing and politics seldom
interface. In order, therefore, to
inject some much needed reality
into next month's election,
Focus presents his Easter Guide
to Voting.

Given a free vote, most DP
managers would support the
party promoting the abolition of
late night shift working, the
simplification of payroll and
VAT applications, and the
provision of company cars to all
DP executives. Any party sug-
gesting a referendum on field en-
gineering services, would
receive full-hearted support. A
distinct DP vote-catching policy
would be to encourage the
appointment of DP managers to
the boardroom.

Unfortunately, such sound
policies are unlikely to be a
feature of the election. Involvement
in politics is limited to the in-
stallation. Many senior com-
pany managers believe that
their DP team is far too Conser-
vative in implementation es-
timates, too Labour intensive,
and too Liberal with company
budgets. Politics usually consist
of appealing user departments
with promises and future gold

A national necessity

academic freedom which, in
practice, turns out to be freedom
to provide inadequate curricula
to meet the needs of those who
are going out into a not particu-
larly friendly world, it is, in
fact, an attempt to be more re-
sponsive to those needs.

That is not to say that the
educational system should be
geared up to produce a genera-
tion of programmers or systems
analysts — although a few more
of these would not come amiss
— but rather to give as wide a
spectrum of schoolchildren as
possible, some feel for what
computing is all about.

Such evidence as we have
suggests that schoolchildren
react positively to computers,
particularly if this involves
"hands-on" experience, and that
this reaction is by no means
limited to the brighter children.

The computer thus becomes
not just another boring subject
to be studied at a theoretical
level, but a powerful teaching
aid, in the hands of an
imaginative teacher. And with
the advent of the low-cost
microcomputer the possibility of

integrating the computer into
the teaching of a number of
subjects rather than leaving it as
the sole preserve of the Mathe-
matics Department, becomes
feasible.

The end-result of this
approach to computer education
will, hopefully, be pupils who
view the computer not as an end
in itself, but as a tool which can
be used to help solve problems in
different disciplines and a
variety of situations.

Such familiarity breeds not
contempt, but acceptance, in
much the same way as the cal-
culator, the typewriter and the
telephone are accepted as tools
of everyday life. And that,
surely, must be healthy, for de-
spite the power and the ubiq-
uitous nature of the com-
puter, it is a machine, and a
machine is neutral. It is what
man does with it that matters.

And the recognition of that fact
is, of course, what computer
education is all about.

Computer Weekly has consis-
tently promoted the view —
over the past 10 years — that
computer education matters,

and that a centrally planned and
co-ordinated programme for
providing that education should
be adopted rather than a haphaz-
ard reliance on the enthusiasm
of dedicated individuals which is
our current approach to this
problem.

Individual enthusiasm can
achieve much, and is not to be
sneered at. We are fortunate to
have had a body such as the
Computer Education Group to
provide a focal point for work in
this field. But the time has come
for a concerted and sustained
attack on computer illiteracy.

A survey carried out by PA
International for the Depart-
ment of Industry showed that
only 8% of the companies inter-
viewed had taken any action
with regard to the use of micro-
processors, and that 53% had
done nothing at all. It is at least
arguable that a programme of
computer education carried out
at secondary school level — and
beyond — over a ten-year period
would have had some influence
on those figures.

Computer education is no
longer a purely academic con-
sideration; it is becoming a
national necessity.

More options for ICL users

From front page

And Mats, a 1900 and DME/3
system marketed successfully
by the company in Sweden.

There have also been new
releases of MTS and TP Option,
the former available
immediately and the latter
available from the middle of the
year.

Though few details have yet
been announced, ICL has
apparently given serious con-
sideration to forward com-
patibility in selecting and de-
veloping the products which it
says provide "a clear develop-
ment path for users".

Ten years ago...

COMPUTER WEEKLY
APRIL 17, 1969

HONEYWELL launched a new
pronged attack on the European
market with the launch of the
13200, which used chips and
was aimed at users with con-
trolled systems, and the 13100
aimed at mini users, particularly
those with scientific and control
applications... A tape re-
verter, the Model 4201, was
launched by Friden. It read
paper tape and wrote it on to
seven track magnetic tape... A
nationalwide service was planned
for US stockholders by RCA.
Work was about to begin on the
Swedish Vehicle and License
Centre... ICL won a £20,000
order from EMI for the auto-
mation of its ordering, despatch
and production systems on its
System 4/40 and a System 4/70...
Trans World Airline planned to
extend its online seat reservation
system to its Outpost
Street offices and it hoped to
extend the 88300-based system
to cover the Hilton Hotels chain.

With most of the

application programs are
written as independent Cobol
RPG programs and can be
transferred to a new sys-
tem independently of the
monitor. TP monitor sta-
bility is also provided.

Although the company has
longer been marketing Telex
putting the TPS, existing users
continue to receive full main-
tenance and support.

Telecomputing has been
a subset version of TPS, which
is used by more than 200 sites
worldwide. Details on p. 7.

Stick and carrot Labour policy

PLANS in the Labour Party's
manifesto for instituting plan-
ning agreements with large
companies, accompanied by
statutory back-up, have met
with little approval in the com-
puter industry. Peter Hall, cor-
porate director of ICL, said that
such a policy would "hinder the
company's ability to seize
opportunities when they arise,"
and would not prove to be
workable in practice.

Such agreements, according
to a Labour Party spokesman,
would be negotiated between
the government and the top 100
or so large companies in the UK,

and would be intended to ensure
that the firms' plans for devel-
opment and investment were in
line with the Industrial Strategy.

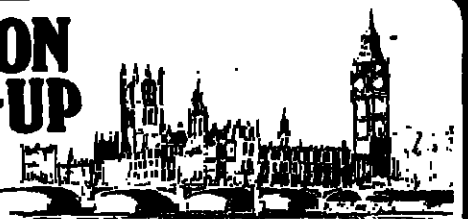
At issue would be how much
investment is taking place,
where factories are being built
relative to areas with unem-
ployment problems, whether the
firm is pressing hard enough
with introducing microproces-
sors and other new technology,
what its level of R&D
expenditure is, and other
matters affecting national and
regional priorities.

A combination of "sticks and
carrots" would, according to the

spokesman, be used to persuade
firms to see things the govern-
ment's way. The principal stick
would be the withholding of
financial assistance to firms
whose plans did not tie in with
government priorities, but other
possibilities would be price con-
trols and withdrawal of con-
tracts and state purchasing.

Peter Hall added that ICL was
in favour of close co-operation
with government, but he did not
feel that the firm's current good
relations with the Department
of Industry would be helped by
any statutory compulsion. "We
are basically against any statu-

ELECTION ROUND-UP



tory interference in the way we
run the business for the benefit
of the shareholders, the staff,
and the customers," he said.

IBM came out with no firm
statement on planning agree-
ments, but is thought to hold
broadly the same views as the
CBI, which describes itself as
"flatly opposed" to what it
regards as "greater government
interference." IBM is particu-
larly reluctant to involve itself in
anything that entails revealing
confidential business informa-
tion, and for this reason has
been unhappy about co-
operating with National
Economic Development Organi-
sation studies in the past.

The Conservative manifesto
mentioned the "reversing of
nationalisation" specifically to
do with aerospace and
shipbuilding but not the Na-
tional Enterprise Board which
holds shares in ICL, Immos,
Nexos, and Inscac. Environment
spokesman Michael Heseltine
said, however, that a future Tory

government would "consider"
selling ICL to private investors,
a move that would probably be
welcomed by the company.

For some time official Tory
policy has been to sell off the
parts of the NEB's property that
are going concerns as soon as
possible, and reduce it to a
holding company. Prominent
Conservatives have said,
however, that Immos, Nexos
and Inscac should definitely be
retained until they have
established themselves (CW,
April 12).

Training centre

WARRINGTON is the location
chosen by Data General for a
European field engineering
training centre which will
include 20 classrooms. The
centre will be based at Birchwood
Science Park and Data General
plans to provide every field
engineer with between four and
12 weeks of training there each
year.

Kienzle's £40-a-week accounting system

A BOOK-KEEPING and ac-
counting system for about £40 a
week — much less than the cost
of employing one accounts
clerk — has been introduced in
the UK by German small
systems manufacturer Kienzle.

Called the Kienzle 1800 and
driven by the Intel 8080 micro-
processor, the machine is fully
upgradable to Kienzle's highly
successful 2000-2200 series of
magnetic ledger card com-
puters, of which 800 have been
installed in the UK and 7,000
worldwide.

It includes the processor,
flat-bed ledger card reader,
dual-feed 100 chps matrix
printer for continuous
stationary, 32-character strip
display for operator guidance,
and magnetic tape cassette
drive for program loading.

The rapidly increasing cost of
custom software has led to a
revolution in the office com-
puter scene, and these days
Kienzle says that 70% of the
software used on its machines
is now preprogrammed packages.
These are included in the price
of the machine, which sells
outright for £7,000.

Wilkes

TERMINALS

VT100 Video Terminal From **£1195**

LS120 DECwriter KSR Terminal From **£1625**

Texas Instruments 745 KSR 30cps Silent 700 with Acoustic Coupler From **£1395**

Texas Instruments Portable 30cps with 20k Bubble Memory From **£2395**

Teletype 43, 30cps Table Top Terminal From **£865**

Hazeltine Video Terminals From **£550**

Hazeltine Video with VT52 simulation From **£840**

Pericom 6903 Video 132 col x 24 line screen From **£1289**

Qume Sprint 5, 45cps daisywheel line printer From **£2150**

ALL PRICES EXCLUDE V.A.T.

Wilkes Computing Ltd

Based at the 12, Pinner Road, Pinner, Middx. HA5 2JN
Tel: (0272) 290851 or 290821 Telex: 449209

Transpac is open

AFTER running a limited service
since December (CW1, January
11), Transpac is now officially
open. It has 10 switching nodes
based on TRT CP80 modules
superficially by six control
centres using IBM 125 minis,
serving 70 users with leased
lines and 80 who link indirectly
via the telephone or telex
services. Another 300 have
applied for connection.

Transpac capacity of the
network is 1,800 users, but two
more packet switches are to be
added soon and in 1980 the
capacity is expected to reach
4,500 users with 25 switches.
By 1985 the plan is to reach a
capacity of 25,000 users with
between 40 and 100 switches.

Transpac president, Vernon Le
Bren, thinks this could ease the
burden since the service is
being aimed at small to medium
businesses with 200 to 1,000
employees.

International nodes are
planned to provide links to
Buenos Aires and the US before
the end of the year.

Datsaah first year figures

In the report on the progress of
Datsaah AB, the company
formed by the merger of the
Datsaah Division of the
Sas-Scanla and Stansaab AB
(CW, March 29), the figures
given for the first year of trading
were garbled in transmission
and incorrect totals printed.

During 1978, Datsaah's first
year of trading, it recorded sales
of about £12.5 million. This loss,
in line with the original

Civil Service strikes off

STRIKING Civil Servants are
likely to call off selective strike
action (CW, April 12), at the end
of this month following a
recommendation by union
leaders to accept the latest
government pay package.

The first stage payment
proposed is 9% plus £1
backdated to April 1, a further
5% in August, with the balance
of Pay Research Unit estimated
increases on January 1, 1980.
The extra £1 will be available
only to those earning less than
£4,785.

Increased allowances for sys-
tems analysts, programmers,
and operators will be £250 after
one year's service, £450 after two
years, and £750 after three years.
Previously, these were £150,
£300, and £750, respectively.

Features you can use now
Our new system builder, the PRIME 450
starts with:

- main memory of up to 1 MILLION BYTES
- support for up to 32 SIMULTANEOUS
- USERS
- 32 MEGABYTE cartridge disk
- 2K BYTE cache memory
- 32 MILLION BYTE virtual address space
- per user
- complete diagnostic capability
- moving point and business instruction set
- discounts for quantity orders



The new computer
Introducing the PRIME 450 — designed
especially for builders of small business systems
and distributed processing systems. Together
with the new S50, 650 and 750 models, these
PRIME computers establish new
price/performance standards for the interactive
multi-user applications.

Maximum software compatibility
Each of the four new systems uses the same
languages and software operating system —
PRIMOS.

A single version of each industry-standard
language including COBOL, FORTRAN,
BASIC, and PL/I is available together with
powerful CODASYL compliant DATABAS
software.

The communication system called
PRIMENET provides complete local and
remote network facilities and a distributed
processing terminal executive, DPTX,
provides an IBM 3270-compatible interface for
all PRIME computers.

The PRIME user plan features the industry's
first processor trade-in plan. If the PRIME
system you start with needs more computing
power you simply trade in the central processor
for a faster one.

For more information on the new PRIME 750,
650, 550 and 450 systems return this coupon to:
Michael Grant
Prime Computer (UK) Ltd, The Houslow Centre
Lampson Road, Hemel Hempstead, Herts
or telephone 01-572 6241.

NAME _____

POSITION IN COMPANY _____

NAME AND ADDRESS OF COMPANY _____

TELEPHONE NUMBER _____

PRIME

Mainframe power at
minicomputer price

Downtime

by Chad

Less than equal

AT the Info 79 exhibition, Christine Stott of Case, the telecommunications manufacturer, was proudly showing off her first all-girl stand, that is, the first manned, or, personned, entirely by women. Most scathing she was of the men visitors who strode onto the stand and said, "Can I speak to someone who knows about this equipment?"

"Certainly sir," Christine would reply in her best icicle manner. "Would you like to talk to me, or perhaps our engineer?" pointing to Liz Rees.

I meekly suggested that perhaps the men's assumptions stemmed not from misogyny but bitter experience. On each of the two previous stands I had visited I had asked the woman de-

monstrator a fairly basic technical question. The first gave me an answer that was flatly wrong and the second said she would have to get an engineer to phone me.

This Christine greeted with her famous duplex smile that is both disarming and withering at the same time. Anyway, more power to her elbow. I say, the sooner people like her and her team convince more women to take an interest in matters technical, the quicker the problem will disappear.

With superb timing, the head of a Case salesperson (male) who had dropped in on the stand poked out of a back room. "Would you like milk in your tea, Christine?" he asked.

Eccentric nosedive

OH dear, I've got some grovelling to do. My piece on April 5 claiming that an airliner could not have an offset nosewheel turns out to be a load of cobblers. My aviation correspondent assures me that Trident does indeed have such a nose-wheel, and that although when the brakes are on, the asymmetry does produce an effect tending to slew the plane round, this is so slight that the pilot can easily compensate for it with his steering. My apologies to our artist

and to late aircraft buffs. The explanations I was given for why the wheel is offset are interesting though. Some said the strut has to fold up sideways to clear the luggage bay. Others said that the automatic landing system is so accurate that were the wheel in the middle, it would bump up and down on the centre lights of the runway. Aeroplanes are so much more romantic than computers, aren't they? They even have their own oral mythology, with opposing camps.

We must see to it that programmers are trained in their craft

IN a supplement last year on education and training, none of the contributors asked why the shortfall of programmers was so large, though one did comment on the fact that at the time there were over a million unemployed.

There are, I believe, two main reasons for the shortfall, one of which is not hard to find — the industry is growing at a far faster rate than the educational system, and too fast for management to invest in expensive training. We need programmers now!

Other commentators have suggested that training is expensive and inappropriate, and though the government's Tops and Threshold schemes avoid this, we are faced with its comparative ineffectiveness. Surely, we are totally underestimating the size of the problem?

Perhaps we have the wrong approach. Enough has been written about the inappropriateness of computer science degrees to the needs of the data processing industry to lead one to ask: what are we trying to do? Is programming really a profession? Do we expect programmers to study for six years, like doctors and architects, before being let loose?

Do we expect them to practise for five years before granting professional status, like engineers? It really does matter how we think of programming.

Is it an art, to be practised by those with a gift for it? Is it a science, or a craft? Does it really make sense to send someone on a six-week "programming course" and then expect productive work?

When we see what kind of activity programming is, then we can be clear about the form training should take. Not all readers are or have been programmers. Just why have

we appreciate that point of view. And he should see the user's point of view.

And what about management skills such as project leadership? If this were not enough, we must keep up-to-date, be willing to rise above a deluge of manuals, amendments, software notices and errors, and new issues of operating systems and other software.

Do we really expect program-

the result that small establishments cannot afford to pay programmers, and are forced to agencies charging high prices. No, we must all bear the brunt of training.

So where should training take place? There appear to be two options: training establishments like universities, colleges, and firms in the industry; training departments; and, lastly, on-the-job.

What kind of training can we reasonably expect from these places? Training establishments are perhaps best fitted to provide extended courses — programming languages, operating systems, special techniques or methodologies, or specialist courses on aspects of computer science.

Training departments can provide the necessary business appreciation courses, or even computer appreciation courses. Above all, any recruits taking a computer should have a computer appreciation course not just those destined to be the computer department. At last, who better fitted to provide on-the-job training than the programmers?

Yes, we must all bear the brunt of training. The silver has not in their hands, but in ours.

The other reason for the shortfall of programmers is now apparent — programming is a craft, and as such requires a five-year apprenticeship in common with other crafts. Our failure to appreciate this has led to the introduction of irrelevant training.

Programming regarded as a craft, makes sense. No one expects a mason or a carpenter to be proficient in 40 weeks, or even two years.

The approach is simple: a complete equivalence for a government training scheme and in common with apprenticeship, two years for graduates (three for post-graduates). But we should expect every apprentice to serve at least two years in the industry.

By Jonathan Hamilton

The shortage of programmers must be tackled. JONATHAN HAMILTON, one of the team at the South West Universities Regional Computer Centre implementing the RSRE portable computer for the Avon Universities Honeywell Multics system, argues that programming is a craft, and that everyone in the industry must tackle the problem of training.

training schemes failed to provide anything like the number of programmers needed?

A practising programmer is concerned with documents, programs, computers and users (not necessarily in this order). He must be able to understand specifications, and create and maintain them; to discern gaps in specifications and be able to ask the right questions to fill them.

All this betokens a certain familiarity and appreciation of systems — their functions and documentation.

He must understand the function of a program, its position within a system and relative importance, the trade-offs of timing versus efficiency; how much time to write efficient code; will inefficient coding grossly affect the program run (is it run daily, weekly, yearly)?

He must be cognisant of programming methodologies, their appropriateness to the job, their ease of use or otherwise.

He should be able to code to specified standards, understanding and using layout and character conventions, and knowing something of data preparation.

He should know how to generate test data — whether to use test data generators — and how much.

He should know how to dry-run or desk-check a program, how to run his program on a computer, the ins-and-outs of debugging — this last alone demands familiarity with the programming language and the facilities of the interpreter/compiler. He should be familiar with the available software: with program development aids such as flow-charts, decision table preprocessors, and cross-reference generators; with utilities such as consolidators, loaders, library manipulation programs, sorts; backing store maintenance and file handlers.

He should know the contents and specifications of subroutine libraries, be familiar with the more common packages for his particular computer, such as the National Computing Centre's Filetab — another language.

He should know his computer! He should be able to exploit the dependence of his chosen programming language(s) where expedient; be familiar with the operating system, with the job control language — yes, yet another language — most programmers are multi-lingual.

He should be able to write macros, manage files, submit jobs, liaise with operators, understand the difference between production and development environments, priorities, scheduling and timing.

He should know what a program looks like from the operator's point of view, and

mers to learn all this in 40 weeks?

Many people when asked who should do the training say in essence "not me": the government, the NCC, or the BCS, or a "body". Before we can decide on who, what do we require of programming training?

First, it should be up-to-date. This, if they are to train, is a sizeable problem and the government is aware of this.

Second, it should be thorough: a course to teach a programming language is not a programming course.

Third, it should be productive: that is, trainees should contribute materially right from the start. Who knows best the day-to-day requirements of the job?

Fourth, it should be "tailored" to suit the company and the individual, so mass programming courses will not do.

Fifth, it must be economic. It must be faced that no part of the industry is expendable. I do not think that the "ever escalating salary levels" mentioned by D. J. Cowtan, (CW, November 30, 1978) are an admirable objective.

The current situation is deplorable: not every programmer has the ability to be a DP manager, but we are getting to the point where many programmers are paid more than DPMs with

What makes the PACE Exhibition so special?

- Devoted exclusively to Peripheral Hardware
- A great way to get back into business after summer holidays
- All the facilities of a top-class hotel
- New products, the latest in design and ideas
- Trade only — just you talk to the right people

PERIPHERALS at the Centre Exhibition 11th-12th & 13th September Curran Hotel, London

Lessors seeking EEC help over IBM's prices

IBM may soon have no excuse for withholding its rental and lease prices from European leasing companies if the EEC responds to a request from the European Computer Leasing and Trading Association, ECLAT.

IBM insists that it would be violating articles 75 and 76 of the Treaty of Rome if it revealed its prices to third party lessors because this would be interpreted as collusion and, therefore, anti-competitive. It could also prejudice IBM's position with regard to the EEC investigations into its practices, that have been

going on for several years.

But Parry Mitchell, president of ECLAT, told Computer Weekly, "I have been to Brussels and the directorate has indicated that IBM would not be prejudicing its position if it revealed its prices to us."

"It has now formally written to the director-general of restrictive practices asking for the directorate's view to be put in writing. I think there is a 50/50 chance they will respond."

Mitchell pointed out that the US government takes the

opposite view to the EEC on prices. While the EEC regards the exchanging of prices between companies as anti-competitive collusion, the withholding of prices in the US is seen as monopolistic and a restriction on competition. The US Justice Department insists that IBM publishes its prices.

However, IBM in Europe looks like making a major concession to ECLAT by providing ECLAT members with the invaluable consultants handbook that is published by IBM in the US and which comprises about 4,000 loose leaf pages in four volumes crammed with detailed information on just about every IBM hardware and software product.

The handbook also includes all IBM's US prices, but these are of little value to third party lessors in Europe.

Mitchell explained, "At the moment we have to ask a potential customer what prices IBM has quoted to him before

we can decide on our own prices."

IBM's European manager for industry relations, Peter Owden, told an ECLAT meeting in Paris earlier this month that IBM wanted to make the consultants handbook available to ECLAT members, but at the same time he reaffirmed IBM's European policy of not revealing its prices.

Encore for micro forum

MOTOROLA's highly successful Microcomputer Forum, which last year packed the Institution of Electrical Engineers lecture theatre to overflowing is to be held again, at the same venue, on June 4. Among the attractions will be Tom Gunter, Motorola's manager of advanced computer systems, who will speak about the 68000, 16-bit microprocessor and its peripheral devices.

Canada makes freedom of information a major election issue

FREEDOM of Information has become a major issue in the Canadian General Election, in which polling takes place on May 22. Joe Clark, leader of the opposition Progressive Conservative Party, called for a Freedom of Information Act in one of his first speeches of the campaign.

The ruling Liberal Party had promised to introduce a Bill in Parliament by the end of March, but the election had been called before it did so.

In anticipation of the Liberals' proposals, which it was felt would be half-hearted, the Canadian Bar Association has drawn up a model Bill incorporating several novel features. Most notable of these is the requirement that the Information Act would take precedence over all other existing Acts that require information to be kept secret. No documents could be withheld any longer except those in the exempt categories specified in the new Act.

In the six exempt categories, there is no mention of "national security," a term which the Canadian jurists thought too all-encompassing. Instead, "national defence and international relations" are exempted, together with "law enforcement" and legal proceedings. The latter category is specified in some detail, however, keeping secret such documents as might expose confidential sources, endanger the life of a law enforcement officer, interfere with enforcement proceedings, and so on.

Specifically not exempted, though, is information indicating that the police have exceeded their powers or followed illegal law enforcement procedures. This provision could be particularly tricky to implement.

In another area, the Canadian proposals exempt "policy advice," namely opinions, advice and recommendations put forward by officials.

IF YOU'RE LOOKING FOR OCR, LOOK NO FURTHER

OCR ScanData Ltd. specialize in Optical Character Recognition data entry systems. From a simple low-cost compact CDC data entry system to a sophisticated Cummins system that will read, key, endorse, microfilm, and process. From ScanData Mixed-Media systems that will handle a mass of large type-written, printed or line-printed documentation and data, to the ScanData ALPHA OCR system that reads and processes AlphaNumeric Handprint direct.

OCR ScanData systems are solving data processing problems for all sizes of businesses throughout the length and breadth of Europe every day. Whatever the size of your company, we can tailor a system to fit your need with the same standards of accuracy, reliability, cost-effectiveness, speed and control that have made OCR ScanData Ltd. one of the best known names in Optical Character Recognition.

OCR SCANDATA LTD

OCR ScanData Ltd., Queens House 2 Holly Road, Twickenham TW1 4EW Tel. 01-891 0166

Name _____
Position _____
Address _____

Find out more — ScanData have got the one system you need!

Are you keeping PACE with peripheral developments?

Of course! I'm going to the new Peripheral Exhibition in September

OEM or End User — You need to make sure you get the right Peripheral Hardware. PACE is designed to help. Write now for your free ticket.

PACE Peripherals at the Centre Exhibition 11th, 12th, 13th September, Curran Hotel, London

Name _____
Position _____
Company _____
Address _____

Return to E.W. Bentley (Refcon) Ltd., Refugee Assurance House, 41 Abchurch Lane, London EC4N 3DF

At Datasolve APL is one approach to successful modelling.

Not the whole approach. Not the only approach.

Because we look on APL not as a programming language but as part of a service-based modelling environment.

Accessible on-line from a far-flung network at major centres in the UK and Holland giving local access.

Supported by a team of dedicated APL experts including modelling consultants.

Enhanced by a range of APL-orientated products including Datasolve's Financial Planning System (FPS), our APL

Graphics Package and access to our other management products such as our Total Accounting System (TAS).

Complemented by database management products like Datasolve's Ramis II and IDMS.

For details about Datasolve's services and the economical data storage arrangements for high-volume on-line users, return coupon to:

Product Marketing (APL)
BOC Datasolve Limited
59 Church Street
Staines
Middlesex TW18 4XS
Telephone: Staines 61644

Send me more information on:

- ☐ APL at Datasolve
☐ Datasolve APL products
☐ Datasolve Database products

BOC Datasolve

Name _____

Position _____

Company _____

Address _____

APL at Datasolve

OP SPOT

HINT OF THE WEEK

Study the hardcopy log

THE hardcopy log is a mine of information for the trainee operator wishing to learn more about the operating system and the workload.

Study it to learn more about the messages issued by the operating system and to see how the various operating commands are used. Use it to find out the order in which the large job suites are run. It is particularly useful at installations where the documentation is not of a very high standard.

Op Spot awaits your hints. Remember, they can be technical or general in content as long as they relate to the operations environment. And we will give £5 for each one published.

Please include the name and address of your company and a telephone number on which you may be contacted during the daytime.

Out on his own—straight from a TOPS course to solo running

By Bernard Allen

THINGS are looking good for ex-TOPS student David Townsend as he approaches his fourth month as a junior operator at the First National Bank of Chicago's site in Whitehall, London.

He is enjoying the work, obviously coming to terms with the demands of the department very quickly, and is settling well in London, having re-located from Chipping Norton in Oxfordshire.

"Yes, I'm very pleased with the way things have gone so far," said David, who met me in London the other week to discuss his progress.

Working as the junior partner of a two-man shift team, he is involved in the running of two IBM System 3s, providing an online service to staff in the bank's London and Dublin branches.

The terminals are used by



David Townsend

the secretaries who do the "wheeling and dealing" on the Foreign Exchange.

"With all the money that gets moved about, I reckon the capitalist system would probably fall down now if we didn't have computers," he said.

Being part of a small team has

Bernard Allen interviewed Dave Townsend both in the middle and at the end of the TOPS operations course at Borehamwood College in Herts. David has been working as a junior operator at the First National Bank of Chicago in London for nearly four months, and in this interview he talks of his experience and impressions of the industry so far.

Steve Ward, another of the TOPS operations students Bernard met at Borehamwood College, is now employed at the Edgware, North London, site of the Bankers Automated Clearing Services. Bernard hopes to see Steve at a later date in order to find out how he is progressing in the industry.



Steve Ward

enabled him to acquire considerable practical operations experience early in his career.

Not for David the two months or so operating printers which new recruits at very large installations sometimes have to put up with.

He said, "As you know, when I was a TOPS student I did my practical training at the bank's site — that's how I got offered the job — and I learned a lot from that."

"I have just gone on building on what I learned during my visit as a TOPS student. When I joined the bank I already knew, for example, how to IPL the System 3."

For David, a day in operations now involves running a system without direct supervision. If he comes up against a problem he is

I have just gone on building on what I learned during my visit as a TOPS student.

unable to cope with, he calls upon the experience of his senior operator.

He works a two-shift rota for which he receives an allowance of £660 a year.

"Although I don't mind working evenings, I prefer the day shift as it doesn't interfere with social life," he said.

Day shift is from 7.30 am till 3 pm. He went on: "We start up both machines at 7.30 am and run housekeeping on them until 9 o'clock. The schedule for each system is different."

On the so-called London machine, users are brought online under CCP, the Customer Control Program.

He continued: "We sometimes get users calling us up at about 9.30, complaining that CCP hasn't been started. In most cases they can't get into the system because their terminal wasn't switched on early enough."

In-house programmers have testing on the other system from 9 am till 1 o'clock. After that CCP is started for the bank's Dublin branch.

As regards his dealings with programmers, he said, "I get on quite well with all of them, but prefer those who have operations experience."

"You can always tell the operator, because he will say 'Can you please run this job for me?' whereas the programmer will say, 'You must run this job for me.' It's obvious which one appreciates our problems."

The evening shift involves a lot of batch work and calls for the operators to meet strict deadlines.

Said David, "CCP comes off the London machine at 5.30

sharp. From then till 1 o'clock the morning we run live batch work to produce lots of reports and statements, which are taken by despatch rider to our London branch."

Dublin staff have CCP till 1 pm. As on the London system, batch jobs are run to produce reports, statements and various other output.

He said, "All the output for the Dublin office must be finished and boxed-up by 8.30 sharp. It is then collected for transportation to Dublin by the Post Office's Datapost service."

"I prefer operating the London machine on the evening shift as it provides the chance to do some overtime."

The size of the two systems means that the operators don't have a lot of peripheral work to do, aside from feeding cards to the readers, that is.

David had a few comments to make about those devices. He said, "Feeding cards to the reader can be a bit of a day because we tend to get rather a lot of read/compare errors on our 1442 reader devices."

"Every time that happens, you have to take two cards out of the device and feed them back in. The large batch jobs seem to take ages."

"And IBM don't help much either — the engineer always seems to take ages in arrival, and the units don't seem to work much better after he's been working on them."

But the operators' task will ease some time in the future because the bank plans to replace the card readers with floppy disc readers, which are already on site.

Their task will be further eased when a project to install printers at the Dublin office is

I prefer programmers who have operations experience. They will say 'Will you please run this job for me,' whereas the programmer with no operations experience will say 'You must run this job for me.'

completed. Then they won't have to meet the 8.30 deadline every evening.

So far all of David's industry has taken place in the computer room, but plans are in hand for him to visit users' departments to get a better appreciation of their needs and problems.

"It's intended to broaden my knowledge of the way the bank functions," he said.

On a more personal level, David is looking to buy a house somewhere in London.

"After you have been at the bank for a year, they will give you a 5% mortgage. But I won't wait till then. I hope to get a place as soon as I've sold my house in Oxfordshire."

OPERATORS often complain that nobody listens to their point of view. What Op Spot is all about is to give operators a voice. It's a place where they can express their views on the way the industry is run. It's a place where they can get their views on the way the industry is run. It's a place where they can get their views on the way the industry is run.

Visits to service bureau

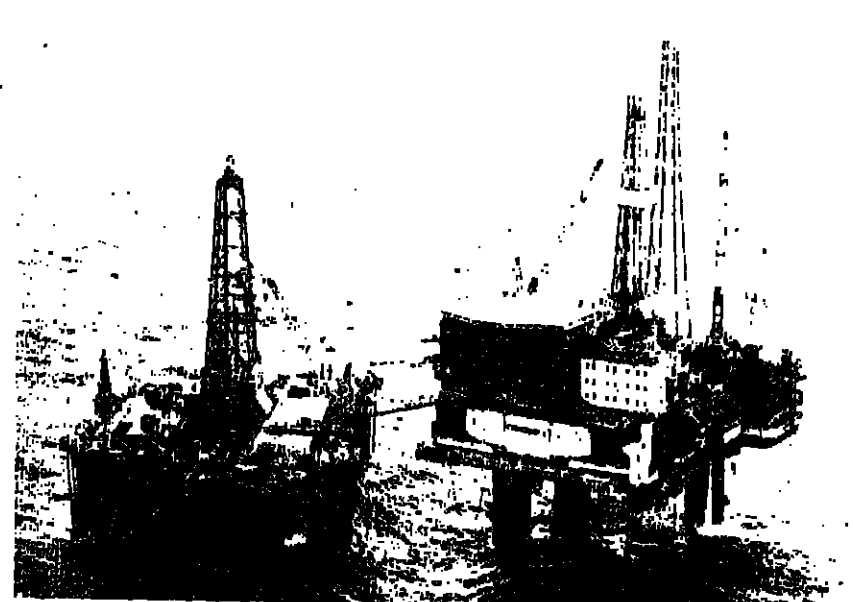
I HAVE had a good response to my request for installations to feature in Op Spot. The first visit will be to Austral Computer Services, a bureau in the City of London.

Monitoring oil rig behaviour

A FAMILIAR sight in the North Sea these days is oil production and drilling platforms like Cormorant A and Nortroll, shown here. They belong to Shell (UK) Exploration and Production which has placed a £100,000 contract with Structural Dynamics for a base line measurement survey that will cover the recording and analysis of the vibratory behaviour of 100 pieces of rotating machinery on Cormorant A and two other platforms.

The essence of base line measurement is that it assesses how a piece of equipment performs at the start of its life and produces profiles against which future behaviour can be compared.

Data will be recorded on magnetic tape and taken to the office of Structural Dynamics in Southampton where it will be processed on the company's Prime 400 computer.



Ministers quizzed on medical research

THE subject of the development for medical diagnosis of nuclear magnetic resonance, a technique which uses radio waves to define the structure of complex chemicals, has been raised in the Commons by Mrs Renée Short.

The technique is used to produce cross-sectional images of the human body, including any abnormalities in the tissues, by linking NMR instruments to a computer which reconstructs the slices. NMR will, it is hoped, provide a complementary or even a substitute technique to CAT scanning, without the risk which accompanies the use of X-rays.

Mrs Short asked the Secretary of State for Industry and for Social Services what help they were giving research into the technology, and how they intended to assist its commercial exploitation by UK firms.

Alan Williams, Industry Minister, replied that the DoI aid would be available for projects which held commercial promise. Support was being given from public funds to research groups at several universities, and through government agencies to research by industry.

Health Minister Roland Moyle replied that his department was working closely with the NRDC to assist in the development of the technology.

Cable & Wireless UKS—A Unique World of Experience in Communication Systems.



Cable & Wireless UKS has a total capability embracing all aspects of telecommunications and data handling systems in the UK.

A capability backed by unrivalled expertise and over a century of world-wide communications experience in the Cable & Wireless Group.

A total capability in planning, design, installation and training; in providing hardware, software, systems, networks. And when the job's done, a comprehensive country-wide maintenance service. A capability no manufacturer can match.

And more than that...

We have the widest possible choice of equipment from the world's leading suppliers. So you get the best package to suit your specific needs.

We've already engineered systems for some of the major organisations in the country. And we can do the same for you — however large or small your requirement.

Unique capability, expertise and experience — at your service.



Cable & Wireless UKS

Total capability through world-wide experience

Cable & Wireless UK Services Limited, 92/93 Blackfriars Road, London SE1 8HA. Telephone: 01-633 8877. Telex: 915455.

Distributed Processing Control it... with DECnet.

Distributed processing is a reality.

The economies of scale have dramatically shifted from centralised batch-oriented machines to distributed, interactive processing and networks.

Many companies already have hundreds of distributed computers in laboratories, in warehouses, in sales offices, on the production lines. Digital Equipment alone has installed more than 140,000 of them.

One question remains: how to acquire

and exercise control of data. For is it reasonable to permit such autonomy that data remains unshared? Is it reasonable to permit such independence that all information is isolated, and then duplicated elsewhere, again and again?

Control is important, and DECnet is the best way to gain control and exercise it. DECnet is Digital Equipment's networking software. It permits communication among all Digital Equipment computer families using virtually any Digital Equipment operating system. And through Digital Equipment's

family of protocol emulators, you can tie non-Digital Equipment computers — including large mainframes — into your network. That network may be configured in a range of topologies — hierarchical, ring, star — matching controls to your management or organisational style and needs.

If you'd like to learn more so you can develop a strategy for controlling your distributed computers as you see fit, fill out the coupon. Talk to the company that started the trend to distributed processing.

I'm interested in your DECnet system. Please send me more information.

Name _____
Position _____
Company address _____
Telephone _____
Send to: Terry Clarke,
Digital Equipment Co. Limited,
Digital House, Kings Road,
Reading, Berks, RG1 4HA.

digital

Digital Equipment Co. Limited

Office 1170

PEOPLE AND EVENTS

Honeywell names PPS team

HONEYWELL Information Systems has announced the appointment of Tom Bune as national sales manager of Honeywell page printing system. A former manager of major international accounts, Bune will be responsible in his new position to John Macdonald, who is the UK director of PPS marketing. In addition to this appointment, David Hallett has become a member of Bune's sales organisation, with emphasis on public sectors and central government. The Honeywell page printing system is operated by the Level 8 minicomputer, and prints at speeds of 8,000, 12,000 or 18,000 lines per minute.

Paul Abrahams has been appointed chief hardware design engineer with System Industries, and Colin Smith software engineer. Both men joined the company as engineers in 1977, and have recently worked for SI's parent company in America. New field engineer is Steve Papacharalambous, who is the company's microprocessor specialist. Bryan Schutes has become a sales executive, formerly having worked for Alex.



Bune



Hallett



Jefferson



Ward



Leighton-Davies



Lewis



Bryan



Harper

Arthur Lynch has become senior director for network products with Codex. He was until recently marketing manager for communications and terminals at Data General, and before that was systems engineer and marketing manager for Honeywell.

Graham Harris has been appointed by Redifon Computers as international systems engineer for Czechoslovakia. He joined the company as a unit test engineer. Formerly works manager, John Gunning has been promoted to the position of manufacturing manager, while Mike Wildridge, previously a financial programmer with Eaton, has joined Redifon as a systems analyst.

Jim Timmons has been appointed by CMC as territory manager for the West of Scotland. He joins the company after working for Cybernet Research Consultants' timesharing division, as a salesman.

Robert Jefferson has become managing director of Perkin-Elmer Data Systems, was previously general manager of UK operations. Other appointments at the Slough headquarters of the company include that of Archie Thomas as general manager of the international division in Europe. He was formerly deputy managing director, as well as director of international operations. Also promoted to the board is Martin Waters, who is head of Perkin-Elmer's European software division based at Slough.

Lucy Harper, a former junior systems analyst with Redifon, has become a systems supervisor with Arbat.

Peter Bryan has been made equipment sales manager for the South and West branch of Memorex. Previously, he was a senior salesman with Telex and before that was in media sales with CDC.

Director of Rascal

RACAL ELECTRONICS has announced the appointment of Leighton Davies as a deputy managing director. He will retain full responsibility as chief executive for the Racal Data Communications group. Davies has been in charge of this division since 1988 when he became managing director of Racal-Milgo. He was previously general manager of transmission and data systems with Standard Telephones and Cables, and prior to that was managing director of GEC Computers and Automation, in Wembley.

Ashley Ward has joined London United Computing Systems as a sales consultant. He was previously a professional works motor racing driver.

David Lewis has become managing director of Sphitex Designs. He was formerly manager of data communications for the Stock Exchange's Talsman system, after working as a consultant with Software Services.

Eric Lipscombe has become associate sales director of ICL, with responsibility for Central London. Lipscombe was a senior marketing manager with IBM.

Greg Smith, until recently general manager of marketing with ICL, has been appointed as education marketing director and executive director of the Apple Foundation. Before joining CDC, Smith was vice-president of product management and development at Bell and Howell.

John Henry, vice president of product marketing with Centronics, has been appointed vice-president of European marketing. He will be based at the company's European headquarters in London, and will report directly to Terence Harris, vice-president of European operations.

Appointments at NCR

AS part of the expansion of its micrographics systems division, NCR has announced three new appointments. Bernard Hunt has become manager of COM sales. He was formerly a COM salesman, after joining the company in 1985 as a computer operator. In his new position he replaces Jon Weller, who has become manager of COM sales support. Peter Morris, previously a salesman in micrographics with the company, has been appointed as district manager for micrographics sales in the North.

A chartered electronics engineer, Barry Glider, has become product manager of the micrographics division. He joined NCR in 1985 as a design engineer at the Southampton laboratory, and later became a COM development designer.

Peter Ryan has been appointed special system sales manager at the headquarters of Systems in Leeds. He was previously with Lucas Aerospace where he was most recently employed as manager of automatic test equipment.

David Hawkins, previously marketing manager of Bundi Tabor, has been appointed as sales director. He will be based at the company's European headquarters in London, and will report directly to Terence Harris, vice-president of European operations.

DIARY

APRIL 18-19 Which word processor, and seminar Infotech. Regent Centre Hotel, London W1. 9.30.

APRIL 18 Trade union perspectives. Ian Hanson ICS London branch. Walcott Hotel, London WC2. 18.00.

APRIL 18 Marconi systems, an appraisal of current developments. ICS, Stoke Newington, London N16. 10.30.

APRIL 18 The new information media. ICS South Essex branch. West Cliff Hotel, Westcliff-on-sea. 10.40.

APRIL 20 Seven-a-side soccer and dinner. ICS Belfast. Uphill Park, Belfast. Details from W and F Heron, tel: Belfast 58415.

APRIL 23 Eurocon. P. Kelly. ICS data communication specialist group. ICS headquarters, 13 Mansfield Street, London W1. 18.00.

APRIL 24 What next in the office? NCC. Cate Royal, 48 Regent Street, London W1. Microprocessors. T.G. Road. Pentonway Road, London. English China Clay, St Austell. 18.20.

APRIL 24 ICS Hampshire branch. Visit to Eton, Pwllay. 18.00.

APRIL 24 Planning for the 1981 census. ICS Local Government group. West Midlands County Council, 1 Lancaster Circus, Birmingham. 14.00. Please notify secretary on 01-828 2331 if you wish to attend.

APRIL 24-26 IBM CITA annual forum. Royal Bath Hotel, Bath. 14.00.

APRIL 28 ICS Sussex branch. Visit to British Caledonian Airways, Gatwick Airport. London. 14.30.

APRIL 28 Interactive computing. Study Group on Computers in Survey Analysis. Manchester Polytechnic, Manchester.

APRIL 28 Microprocessor-macro course. ICS North Staffordshire branch. Laven, Clayton Lodge Hotel, Newcastle-under-Lyme. 20.00.

APRIL 28 Data protection legislation. ICS Edinburgh branch. Heriot-Watt University, Edinburgh. 18.00.

APRIL 28 Viewdata systems and their implications. Tom Stewart. Polycon of Central London, Regent Street, London W1. 18.00.

APRIL 28 Computer aided drafting and drawing office of the 1980's. ICS, computing techniques section. ICS, Walsley, London SW1. 14.20.

APRIL 28 Lecture and demonstration. ICS, Walsley branch. PYE TMC Midlands. 20.00.

APRIL 28 The significance of computing. ICS South West branch. Worsfold Hotel, Harnack Road, Exeter. 18.00.

APRIL 28 Installation visit. ICS Windows. South Wales branch. Curran Road, Cardiff. 18.00.

APRIL 28 Computerised hospital outpatient projects. ICS Medical (Scotland) group. Southern General Hospital, Glasgow. 11.00.

APRIL 27 Microprocessors can make magic. R. Fairbank. Queens Hotel, City East, Chester. 19.30.

MAY 1 Negotiating computer contracts. European study conference. Canal Conference Centre, Duckhouse Lane, London W1. 9.00.

MAY 3 Energy saving with microprocessors. Microprocessor application group. ICS, Survey Place, London WC1. 14.00.

Succeeding with data. ICS Applied Systems. City East, London W1. 9.00.

Details from Jackie Collins on 01-828 2331.

by Cate

Lineware Saga

HERE WE GO AGAIN—

OFF ON THE

TOLLING ROUTINE!

NOPE—I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

I'VE GOT MY OWN

OUTPUT

Satellite copier deal clinched

AM INTERNATIONAL has formally announced the contract reported exclusively in Computer Weekly last month (CW, March 8), under which it will develop a computer controlled laser based copier system for the IBM joint venture, Satellite Business Systems. It will be able to scan and transmit one page a second—far faster than any existing facsimile system.

BCPL sales and support firm set up

A THIRD Cambridge-based firm has entered the ranks of those offering to sell and support BCPL software. Called Fen-dragon, the company is able to supply a number of off-the-shelf BCPL compilers, with a notable emphasis on microprocessor systems.

Among devices currently supported are the Texas 9900 and National Semiconductor Pace. An interpreter is currently under development for the Zilog Z80, and further implementations are planned for the Motorola 6809 and Intel 8086.

Other compilers available run under RSX-11M, RSX-11D and IAS on the Digital Equipment PDP-11 and under Rdos on the Data General Nova and Eclipse. Fen-dragon is at 187 Chester Road, Cambridge.

Meanwhile, the public transatlantic facsimile service for UK postal users reported in CW last year (CW, June 15, 1978), looks like going live on a trial basis this summer, although the Post Office is unable to specify an exact date. Trials were originally intended to start last month.

Called Intelpost, the service will use the Intelsat satellite and facsimile kit built in the US by Rapicom of California. It will operate at 9.6K bits per second—one page in less than a minute—which is fast by conventional standards, but very slow compared with the satellite speeds that SBS is taking full advantage of.

Intelpost will be available in all London postal districts and according to the PO it will run like the Express Post service. Letters will be rushed to an office in central London where they will be scanned and transmitted via Intelsat to either of two destinations—New York or Washington.

Security service

WACKENHUT UK have established a data storage centre at Luton, with a view to opening further off-site storage facilities in London, Manchester, Glasgow and Bristol in the near future. The Wackenhut service provides security for back-up tapes, disc packs, microfilm and microfiche in air-conditioned magnetic media vaults which are controlled for stability of temperature and humidity. For the retrieval of information, Wackenhut has a fleet of radio-controlled vehicles which operate 24 hours a day, seven days a week.

Storage firm bought

SAFESTORE, a firm which provides secure storage for computer media, has been bought by the Hays Wharf Group for about £20,000, and is now part of the Hays subsidiary, Hays Business Services Ltd.

Hays already owns another security firm, Datakeep, which it acquired about two years ago.

Safestore's warehouse is on the bank of the Thames at Greenwich and the Datakeep building more or less faces it on the opposite side of the river.

Together Safestore and Datakeep offer more than 700,000 square feet of storage space and provide storage facilities for up to 70,000 magnetic tapes. Their clients include all the major clearing banks.

LSI contract

IN the first large order since its formation as a subsidiary of CPU Computers, LSI Computers is to supply 100 System M-One business systems over the next year to TKM Business Systems.

IBM figures stun brokers

WALL Street was stunned last week by IBM's first quarter figures, which showed net profit up "only" 13.2% at \$887 million on turnover up 19.4% at \$5,290 million compared with the first quarter in 1978. The fall in the value of the dollar cost IBM \$38 million in foreign exchange losses, a turnaround of \$68 million on the figure of a year earlier when it scored foreign exchange gains. Gathering inflation and investment for the future were named as reasons for the modest profit growth by chairman Frank Cary. The Dow Jones Industrial Index fell seven points on the news.

High-speed bookings

INCREASED passenger traffic on British Rail's high-speed service from London to Edinburgh has prompted it to move seat reservations for the service to computer. Consultations with staff are still taking place so BR would not comment on how and from where it was planning to operate the system, but a spokesman did say that "it will be run on an existing IBM computer."



Standing, appropriately, next to a scale model of a communications satellite are the chairman of AM International, Roy Ash, and Philip Whittaker, president of Satellite Business Systems.

Get your hands on this...

...and you'll be in touch with Britain's leading ICL 2900 Computer Bureau

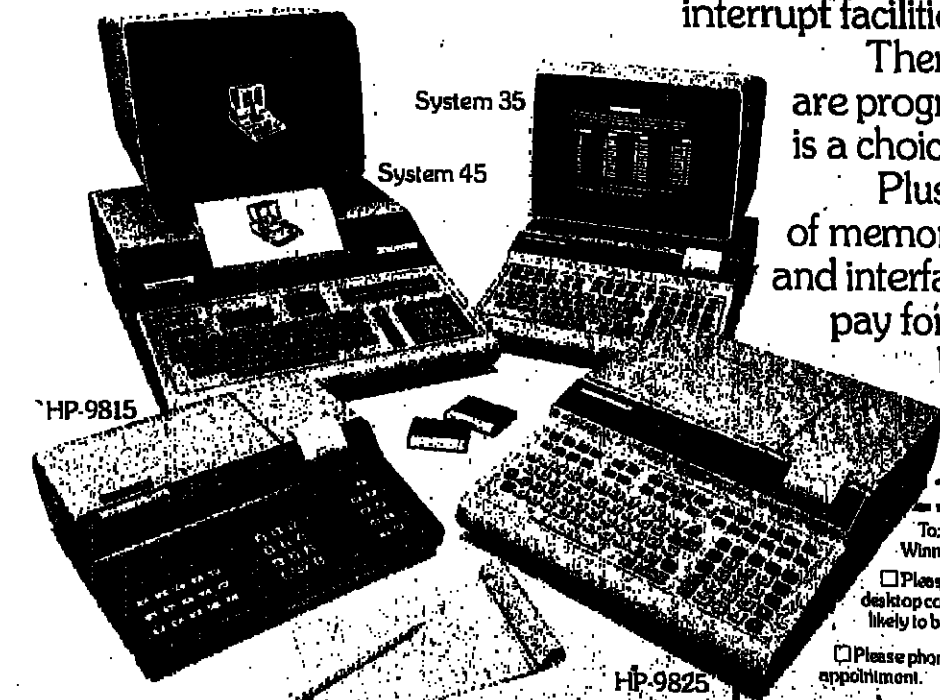
Obtain your copy of the 1979 Computel Services Brochure and you will have taken the first step towards finding out all about the ICL 2900 series and the wide range of services available, which only a bureau with Computel's depth of experience can offer. For requirements ranging from consultancy to fully supported machine time, whether your current interest is DME or VME ask the company who have achieved 2900 success—COMPUTEL. To get your copy post the coupon or ring Tony Matthews on 0344 26767.

For Tony Matthews, Computel Limited, Eastern Road, Bockham, Cambs CB2 3UP. Tel: 0344 26767. Please send us your name and address on the Computel Services Brochure.

Name _____
Position _____
Company/Address _____
Tel No. _____

computel

STOP PRESS
Have you received your invitation to "Computel's 8900 Day" on April 25 at the London International Press Centre? If not ring Tony Matthews on 0344 26767.



HEWLETT **hp** PACKARD
Wingore, Wokingham, Berks. RG11 5AR. Tel: Wokingham 754774.

There are four models. All are programmable and there is a choice of languages. Plus an enormous range of memory options, peripherals and interfaces to ensure that you pay for just what you need, but can expand at will. For more details return the coupon.

To: Hewlett-Packard Ltd, King Street Lane, Wokingham, Wokingham, Berks. RG11 5AR.
☐ Please send me details on Hewlett-Packard desktop computers. My particular area of application is likely to be _____
☐ Please phone me/my secretary for a demonstration appointment.

Name _____
Position _____
Organisation _____
Address _____
Postcode _____
Tel No. _____
Fax _____
DDO CW 114

MICRO NEWS

Zilog offers software multi-package for single board micros

A COMPREHENSIVE package of software to support users of its range of single board micro-computers has been introduced by Zilog. Centred on a floppy disc-based operating system, it incorporates a debugging monitor, text editor, micro assembler and a file manipulation utilities.

Available for a one-time-only charge, and therefore requiring no royalty payments for its use in other systems, the software is intended primarily for applications in industrial control, data logging and education, though it is also suitable for small business applications.

The PROM-based debugging monitor incorporates all terminal and floppy disc drivers required for system I/O. Its debug capabilities include break point setting, single and multiple program stepping, jump to specific address, and save memory contents.

The assembler is disc-based,

and is claimed to be one of the fastest available for any micro-computer. It can generate object code and listing files at a rate of 500 lines of source per minute, a rate that can be increased if no listing file is required.

Source code can be read from one or more discs, while the object code is written directly to disc. Diagnostic messages, however, are transmitted directly to the terminal.

Another feature of the assembler is that there is no limit to the size of the symbol table. If the memory allocation is used up, more space is allocated on the disc and paged up as required.

The editor is line oriented and can deal with very large files, regardless of the size of available systems memory.

Among the file handling utilities available are Cat, for cataloguing directories on disc, and Combin, for merging files.

Revised MCS-48 Assembler

A REVISED version of the MCS-48 Micro Assembler has been produced by Intel for which the company claims a full 100% performance improvement over the previously available version.

Called Version 3.0, it permits program development work to be carried out on the Intel Development System for the full range of microprocessors in the MCS-48 family.

History of semis

THE Microelectronics Revolution: A Brief Assessment of the Industrial Impact With a Selected Bibliography is the title of a new study produced by the Technology Policy Unit of Aston University. The 87-page report gives a brief history of semiconductor development and looks at the many industrial application areas for the technology. It costs £3.

Dutch order 1,000 personal systems

By Martin Banks

DESCRIBED by its makers as a "second generation" machine, the DAI personal computer, from Brussels-based Data Applications International SA, has already won an order for 1,000 systems from a Dutch educational organisation, even before its official launch at Compe Europe next month.

The Dutch organisation, Teleac, is using the systems in conjunction with a micro-processor education course transmitted over Dutch television every week. The systems are supplied to students as part of their course material.

Though basically similar in approach to the UK's Open University, Teleac has been in negotiation with Thames Television in England, and there have been some suggestions that Thames may purchase the Teleac series.

Thames itself has so far indicated that it does not plan to do so, though it is currently preparing three pilot schools programmes on the microprocessor, for transmission in the spring of 1980. If successful, a full course will be considered for the 1980-81 academic year.

The DAI machine, according to Data Applications marketing manager Nimal Jinadasa, was selected by Teleac after a comparative evaluation with several other well-known personal computer systems, including the Apple II, Pet and Tandy TRS 80. The decision, in part, was based on the fact that these systems are not true personal computers and have only limited applications, he said.

The DAI definition for this "second generation" machine is that it covers a variety of applications, ranging from home use through to a variety of professional applications in the one system.

Based on an Intel 8080 CPU the system achieves this flexibility of application, according to Jinadasa, by utilising the DAI common bus structure. Called the DCE bus, this makes the system compatible with the full range of single board computer systems and industrial control systems the company produces. It can therefore be used as the central processor in a variety of industrial and process control applications as well as being a stand-alone computer.

In its basic configuration, the system comes with 8K bytes of memory. This is expandable to 48K bytes with memory mapping. Secondary storage is by cassette recorder, though a floppy disc system and a printer are optional extras.

The prime output medium is the domestic TV screen and, as far as possible, it can be used with all three major colour television standards - PAL, SECAM and NTSC.

The software is a real-time Basic, which is claimed to be very fast. It is maintained in the system's memory as an intermediate code. It provides such facilities as split screen operations, and has a 200 x 200 matrix high resolution graphics capability.

Though the software can operate with floating point maths, there is also an option of including the AMD 941 floating maths chip. A socket provided for this in the system and the software monitors its socket for the presence or absence of the chip.

DAI is also independent of the trucking the same path as the Instruments with its up-to-date personal computer instructions, by including a speed synthesis capability (CV, April 12).

The system has a set of 400 and white noise generators, in which can be used for music and speech synthesis. The price, in Belgium, is expected to be between 30,000 and 40,000 Belgian Francs, or equivalent to a range of £15,000.

Version of Pascal for the micro market

A DUTCH company is now selling a version of Pascal specifically aimed at the personal computer market. Systems such as the SWTP 8800, with sufficient hardware to support the TSC Flex 1.0 operating system, are more than adequate to run programs written in the high-level language.

Available from Lucidatu, which is based in Voorburg,

Holland, the software can compile and run Pascal programs a minimum of 12K plus 4K bytes of memory. The compiler has been written in a subset of Pascal and incorporates such functions as Files, Procedures, Records, and Sets, as well as looping and branch constructs. It also incorporates some of the favourite micro functions, such as Peek and User.

One of the more interesting aspects of the software is the inclusion of a page mode facility. This is brought in automatically if there is insufficient real memory for a large program.

The Pascal compiler and the P-code Interpreter/Run-time system is provided on a 5.25" floppy disc in Flex 1 format.

IC plant set up by Storage Technology

TO complement its \$32 million takeover of the California-based LSI design house, Micro Technology (CW, March 22), Storage Technology has started work on a new 90,000 square foot semiconductor facility at its Boulder, Colorado headquarters.

The new facility will be used to manufacture medium speed, medium density circuits, and thin film heads for disc memories. Pilot production, for internal consumption only, is scheduled to start in 1981.

A major reason for STC to move into the microelectronics manufacturing business is the company's need to cut back on its current nine-month design turnaround on new devices currently provided by the semiconductor industry. By vertically integrating its operations downwards, STC will be able to make use of the LSI CAD software possessed by Micro Technology.

Versatile desk-top system

A COMPACT desk-top computer system capable of being used either as a stand-alone system or as an intelligent terminal for larger computer has been introduced by Kennel Micro Systems.

It incorporates a 12-line video display, a 40-key keyboard with a function keypad, a floppy disc drive and a parallel I/O port. The system is designed for use in a variety of applications, such as data entry, file management, and communications software. It is available in two versions: a 16K version for £1,200 and a 32K version for £1,500.

INDIAN SCENE



ICL corporate director Peter Hall sits up the potential threat to ICL as world markets from the first Indian-designed and built mainframe. A 370/138-class machine, the computer, the TDC-332 is under test at ECIL's plant in Hyderabad, surrounded by banks of angry buzzing cooling fans.

ICL director irked by delays

THE first Indian mainframe ever built, the TDC-332, is still under test at ECIL's factory at Hyderabad, Andhra Pradesh, and is, in theory at least, the first indigenous competitor to the 2904S ICL intends to build in India.

ICL corporate director Peter Hall was a member of the EEC delegation which visited India last month to examine the prospects for both hardware and software collaboration, and missed no opportunity to complain about the problems ICL is facing in India.

The two ICL companies in India, the 100%-owned marketing company and the 60%-owned manufacturing company have now been merged into a single

40%-owned company, ICIM, International Computers Indian Manufacture. The dilution of ownership was achieved by a rights issue to existing shareholders, and any rights not taken up were offered to employees of the company. A further rights issue is to be made shortly to raise more working capital.

Granted a letter of intent for a licence to build a hundred 2903/4 machines - which would be specially adapted to the Indian environment - ICIM is still waiting for the go-ahead from the Indian government. The present problem is that, whereas the 32 1601As built in India were manufactured by Bharat Electronics in Bangalore, the 2904S

are to be built at ICL's own light, airy and spacious factory in Pune. However, the Maharashtra State government has placed restrictions on new manufacturing in Pune, and this issue has stalled grant of the licence.

The TDC-332 mainframe in the picture (above left) is based on the architecture and the Siris-3 operating system of the CII Iris 50 mainframe, which itself was a development of the Xerox Sigma 7.

The architecture has been adapted to accommodate IBM-type multiplexer and selector channels, will have up to one Megabyte of semiconductor or core memory, and will support up to three front-end processors.

Russian contracts

UNDERLINING the extent to which the Russian computer industry is making use of Indian skills and resources, all the core memory for Rjad computers currently being shipped from Russian plants is being made at Electronics Corporation of India Ltd, ECIL's plant at Hyderabad. ECIL is government-owned, and is an offshoot of the Department of Atomic Energy.

The contract with ECIL runs for three years, and our picture shows one of the 64K-byte memory stacks being strung at the big ECIL factory. Eastern Europe mainframes are in general still supplied mainly with core memory, and 20 mil cores are used. ECIL imports the cores from Western suppliers, but everything else is made at the plant or bought in locally.

The Russians also do extensive system software procurement for their mainframes in India, and Computronics, the big services company which acts as agent for the Rjad machines in India, is alone supplying the Russians with software worth £1.25 million annually.

In general, the Russians pay for the software with computers, and the value set tends to be artificially low. Computronics is nevertheless thoroughly satisfied with the business relationship with Electronorgtekhnik, the Russian agency which handles the deals.

Reports by Tim Palmer

Waking up to the bit-slice micro

INDIAN companies have not been slow to recognise the benefits offered by the bit-slice microprocessor. In particular the ubiquitous AMD 2901 four-bit device.

The chips are particularly attractive in the Indian environment where it is much easier to get an import licence for microprocessors than for a minicomputer and where a bit-slice mini can be classified as a microcomputer.

Several members of the giant \$1,200 million Tata Group of companies, involved in power generation, have formed a joint research and development company, and one of the projects under way there is the develop-

ment of a bit-slice emulation of the PDP-11/34.

There are no plans to market the new machine. It is being developed for two reasons: to give the research engineers experience in bit-slice technology and microcoding techniques, and to provide a tool for use in the laboratory for development of defence applications.

The microcoding will be done at the Tata Institute for Fundamental Research, the educational and research centre where India's only established minicomputers, the TDC-312 and 310 were conceived.

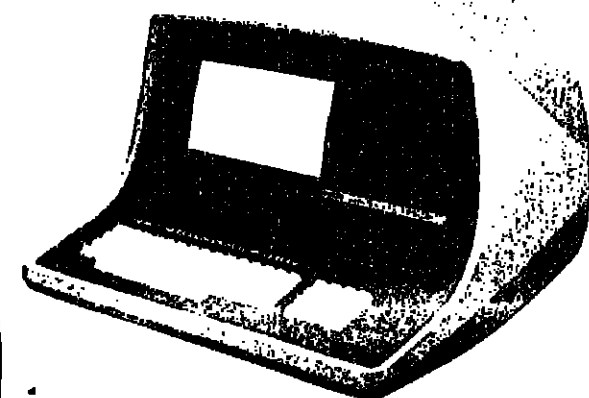
The plan is to build six machines which will be installed at the Tata Electric Companies' research laboratory, where

work is done on Indian defence projects.

Defence is by far the largest single user of computers, and has about half the DEC PDP-11s in use in India.

Other microprocessors in use or being assessed include the Intersil 6100, the 12-bit C-MOS microprocessor which has the same instruction set as the Digital Equipment PDP-8 minicomputer, the Intel 8086, the Zilog Z8000 and the Motorola 68000.

THE MICROPROCESSOR PROMISES TO REVOLUTIONISE THE INDIAN COMPUTER SCENE IN AN EVEN MORE COMPREHENSIVE MANNER THAN THAT OF THE WEST. IN THIS, THE FIRST OF AN OCCASIONAL SERIES ON THE INDIAN HARDWARE SCENE, TIM PALMER, WHO WAS A MEMBER OF THE RECENT EEC HARDWARE DELEGATION, TAKES A LOOK AT DEVELOPMENTS AT ICL, TATA-BURROUGHS, ECIL AND TATA ELECTRIC COMPANIES.



ADDS Regent VDU's Multi-featured. Flexible. Reliable.

Both of the ADDS Regent VDUs we offer have microprocessor-based reliability and flexibility. Each has 24 lines of 80 characters with a 25th "status line" to indicate operation mode and fault diagnosis.

Each has a complete set of visual attributes: reverse video, half intensity, underline, blinking, zero intensity or any combination of these.

Interfaces are EIA RS232C or 20 milliamp current loop, at transmission rates programmable from 75 to 19200 Baud.

The R100 is a flexible conversational VDU with 8 optional function keys; the R200 is programmable for transmission in page, message or conversational mode, and offers an editing option.

For full details, sign your letterhead, clip it to this advertisement and post them to us now.

SYSTEMS SUPPLY

Texas Instruments Ltd, Supply Division MS21, Manjot Lane, Bedford MK41 7PA, Tel: Bedford (0234) 67466, Telex: 82178.

Sales Offices: Bedford (0234) 67466, Extn. 3718; Edinburgh (031) 229 5573; Manchester (061) 432 0043; Slough (0753) 31911.

TEXAS INSTRUMENTS LIMITED

Flexible disks from Control Dataset.

Because the major supplier must make sense for your major investment.

Control Dataset is the leading manufacturer and supplier of magnetic media to the U.K. computer industry.

Main frame businesses rely on Control Dataset, for several good-sense reasons. Including Control Data Corporation's system/drive/head/media total technology capability. The exclusive supply of CDC and ICL label products. And the backing of Britain's largest media sales and technical support force.

Media decisions matter, whether you're ordering flexible disks for a mini-computer or a bulk delivery of disk packs for a main frame system.

So ring 0438 3322 for further details of CDC and ICL label flexible disks, disk packs, disk cartridges, digital cassettes and magnetic tape. And get the major supplier working for you.

CONTROL DATASET

More than a Computer Company

The complete supplier RANGE PRICE DELIVERY

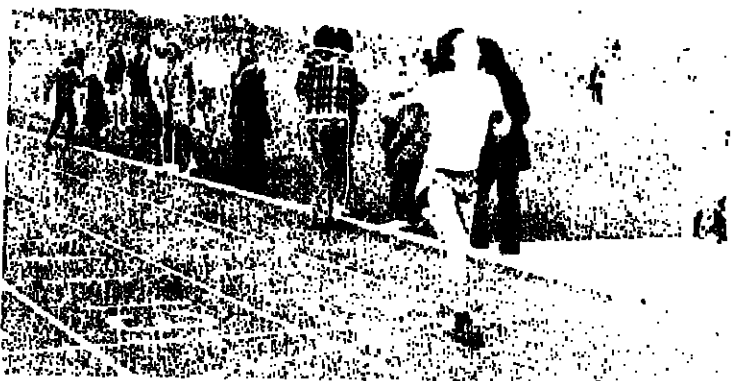
TELETYPE 43KSR From £869 Also ASR and RO Models	LS120 120 cps terminal From £1695	Anadex DE 8000 64 lpm printer From £575	ALSO AVAILABLE SCI Rotary Printer Teletype 43 Typewriter Terminal Teletype 43 Portable Terminal Teletype 43 ASR Digital V100 VDU Lear Siegler ADM 3A Graphics VDU Lear Siegler ADM 31 VDU Lear Siegler ADM 42 VDU A211 Acoustic Coupler DLC 2000 Paper Tape Terminal Teletype 43 Range Microdot Teletype 43 Range Data Cassettes
LEAR SIEGLER ADM-3A From £595 Also ADM-31 ADM-42	Lear Siegler 200 Series From £1685 Heavy duty 180 cps printer	LA36 From £849 Also LS 120, LX 180, VT82	from £ 739 from £ 995 from £ 995 from £1640 from £1194 from £1385 from £ 809 from £1140 from £ 197 from £ 420 from £ 995 from £ 995

VACANCIES FOR SALES & TECHNICAL STAFF
South 01-9414806 North 61885 Dublin 971854

PERIPHERAL HARDWARE LIMITED
Amfield Close, West Molesey
Surrey, England
Telex 922175



ABOVE — one event that attracted plenty of attention — especially from the men — was the Ladies short sprints. This involved running backwards and forwards across the width of the track. Stewards in white jackets counted the number of laps.



LEFT — Seicon's Pete Nicholls is out of sight of the rest of the field in the Mens 800 metres race, the last event of the day. He tied for first place in the individual contest. The ladies were let off with a 500 metres race.

Tie means five trip to finals at Crystal Palace

THE miserable weather failed to damp spirits at the Midlands Qualifying Heat of Computastars last Sunday and, due to a tie in the Mens events, five teams go to the finals.

Held at the New Alexander Stadium, Perry Barr, Birmingham, Ladies teams from Smedley-HP Foods, 54 points; Safe Computing, 50; and Data Sciences, 40, join Mens teams from Seicon, 105½; Data Sciences, 102½; and Peterborough Data Processing, 98, for the trip to the finals at Crystal Palace in September.

Competition in the individual events was very tight with one point separating the winners. These were Angie Dunston, Safe Computing with 20 points; Marilyn Broad, Data Sciences, 19; last year's individual silver medalist Dave Beardsell, Peterborough Data Processing, 28; Pete Nicholls, Seicon, 28; and Viv Oliver, Safe, 27.

The Nottingham-based Midland Household Stores shone in the Secondary Com-



petition which consisted of netball shooting for the ladies and a tug-o-war for the men.

The trophies were presented by John Colling, managing director of Wright Air Conditioning who is a co-sponsor of the event with Computer Weekly.

Ladies teams — Gamma

Associates, Nottingham; Smedley-HP Foods, Leamington; Press Computer Systems, Wolverhampton; Bora, Birmingham; Data Sciences, Birmingham; Link, Driffield; Midland Household Stores, two teams, Nottingham; Electrical, Telford; Safe Computing, Leicester; and Seicon, Milton Keynes.

Mens teams — Gamma Associates, Nottingham; Smedley-HP Foods, Leamington; Press Computer Systems, Wolverhampton; Bora, Birmingham; Data Sciences, Birmingham; Link, two teams, Driffield; Midland Household Stores, Nottingham; Thorn Electrical, Telford; Safe Computing, Leicester; Seicon, two teams, Milton Keynes; and, W&T Ayr Walsall.



ABOVE — part of the art of tug-o-war is guessing the right time to pull at your opponents. Here a tug team from Midland Household Stores is in the final heat.

LEFT — the winner of the tug-o-war, the Midland Household Stores team, is seen celebrating their victory.

For the next heat Computastars moves to Bristol for the South West session where 20 teams will compete at the Whitchurch Sports Centre for the Crystal Palace final.

The third meeting will be the first London area contest and 42 teams will meet at the Sports Centre, Crowley, Sussex, on April 29. The competition then moves to the North East, where on May 13 at the Westcliffe Mount Sports Centre, Cleckheaton, near Leeds, 38 teams will pit their strength and skill for a place in the finals.

And then it's on to the final at Crystal Palace on Saturday, September 29, to find the 1979 champions.



LOOK what we've won! Julie Beaton, captain of Smedley's Ladies team holds aloft the Ladies Trophy after being presented with it by John Colling (right) managing director of Wright Air Conditioning, who co-sponsored the event with Computer Weekly. With 54 points, Julie's team now takes the trip to Crystal Palace for the September finals.



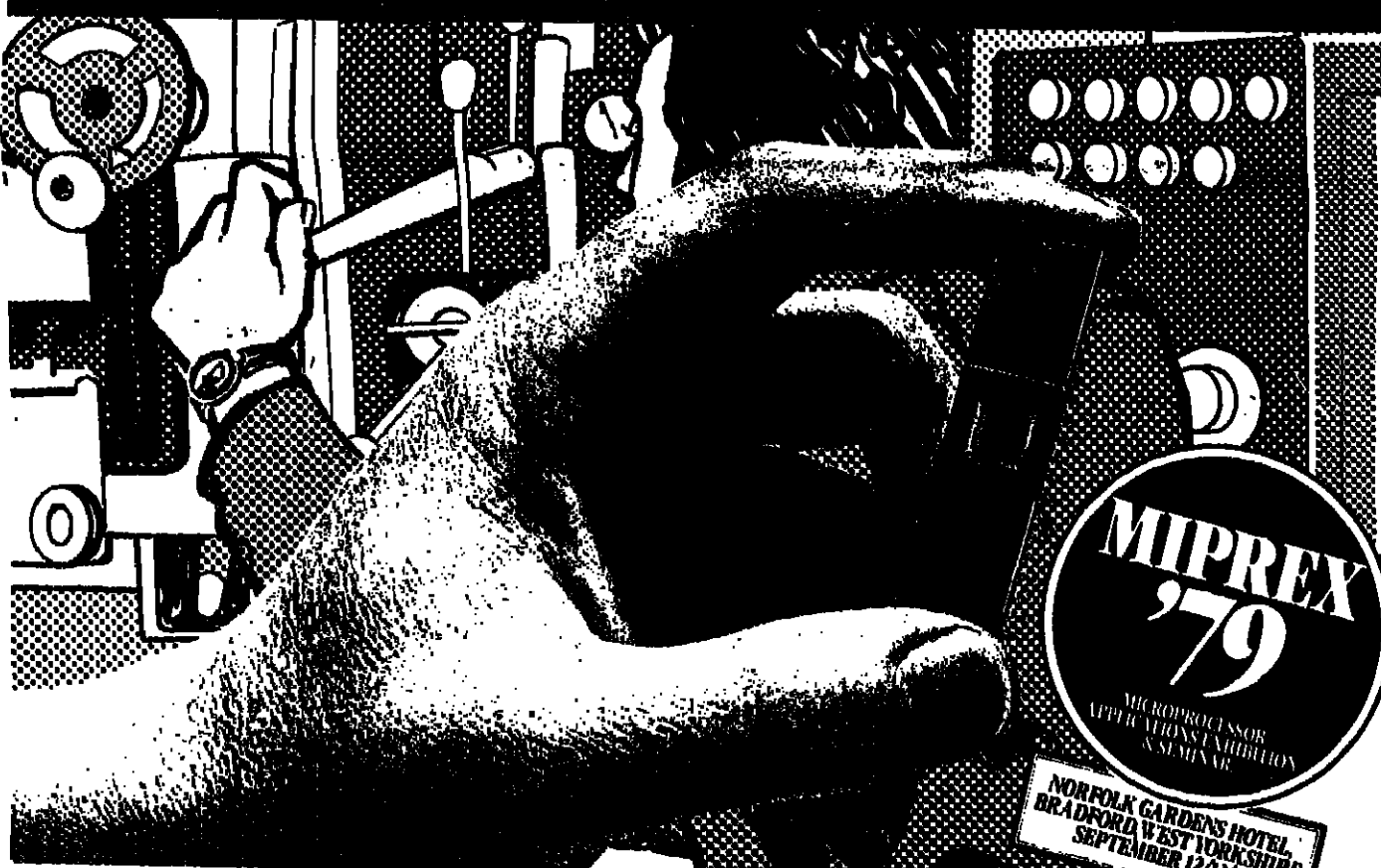
ABOVE — smiles all round as Pete Gray (left) captain of Seicon's Mens team collects his team's trophy from John Colling. On the right is Computastars' organiser Gordon Cairns who was responsible for running the competition at the New Alexander Stadium, Perry Barr.

LEFT — will it or won't it? Joan O'Neil, of the Midland Household Stores' team, waits to see if she has netted the ball. Organiser Gordon Cairns (left) has his pen ready to mark the score. This event was the ladies part of the Secondary Competition which Joan's team won well.

BELOW — the starter's gun sets in motion the last event of the day, the Mens 800 metres. Pete Nicholls (centre, wearing Seicon vest) left the rest of the field behind to secure his team of a place in the finals at the National Sports Centre, Crystal Palace in September.



PRESENT YOUR MICROPROCESSOR-BASED PRODUCTS AND SYSTEMS TO THE DECISION-MAKERS



Practical applications of the microprocessor revolution have appeared so quickly that many people at management and executive levels are largely unaware of the implications.

For their manufacturing processes and administrative systems, their products, their business.

Which is why the West Yorkshire Metropolitan County Council (in association with Bradford and Leeds Universities and Huddersfield and Leeds Polytechnics) is promoting MIPREX.

MIPREX is a combined 3-day exhibition and seminar which will be intensively promoted to industry and commerce as an introduction to the

practical applications of microprocessing.

MIPREX presents you with a splendid opportunity to introduce your current products and systems and discuss development potential with the decision-makers.

POST COUPON NOW to Economic Promotions Officer, WYMCC, County Hall, Wakefield WF1 2QW. Telephone Wakefield 67111.

YES! I am interested in taking stand space at MIPREX. Please send information and a Stand Reservation Form to:

Name _____

Company _____

Address _____

Telephone _____

CW

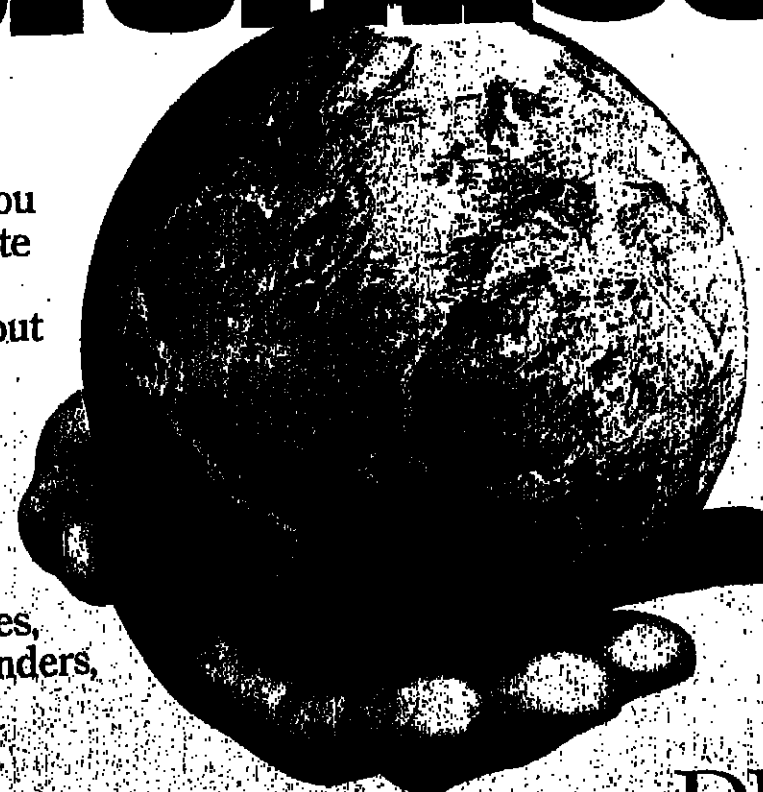
WEST YORKSHIRE Metropolitan County Council. Sponsored by West Yorkshire Metropolitan County Council, Leeds and Bradford Universities and Huddersfield and Leeds Polytechnics.

Promises, promises!

Some companies will offer you the earth to get an order. Immediate delivery from stock, for example, when really someone has to rush out and buy it before you can have it.

Doing business with DRG Systems Supplies is simpler. We mean what we say.

We have massive stocks of computer media — floppy discs, front and top loading disc cartridges, cards — and accessories such as binders, cabinets, racking and furniture.



Order something from us and it will be on its way within 24 hours or by special delivery if you require it.

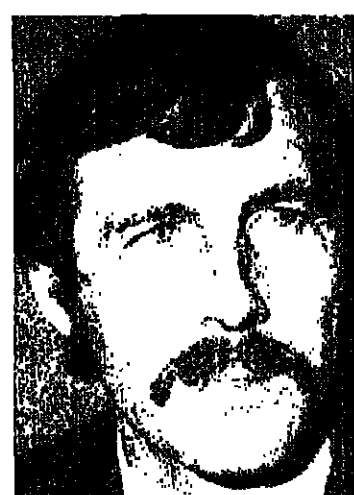
We are the main UK distributor for 'Memorex' diskettes and disc cartridges, and a main distributor for their word processing supplies.

We are part of DRG, internationally famous for paper and packaging, with such stablemates as 'Sellotape' and 'Basildon Bond'. We have a reputation to consider. When we make you a promise, we deliver.

DRG Systems Supplies

DRG A Division of Robert Group Company

Unit 8, Lynx Crescent, Winterstone Road, Weston-super-Mare, Avon BS24 9DW. Telephone (0934) 416392.



From selling a DEC mini from the back of a motor-bike to controlling the Europe-wide marketing operations of a \$1,000 million company from his rarefied style in Geneva, Geoff Shingles (left) has, like his company,

Digital Equipment, grown big by thinking small. TIM PALMER reports on the metamorphosis in the lifestyle of both company and executive in a changing environment.

Bird's-eye view of European operations

WHEN you sit at the top of the Europe-wide marketing operations of a large company like Digital Equipment Corp, you get a bird's-eye view of the whole Continent, and a pattern begins to emerge.

That is the position occupied by Geoff Shingles at DEC's European headquarters in Geneva, and he perceives some subtle differences between the major European minicomputer markets.

"The UK is our biggest market, and the mix of competitors is pretty much the same as it is in the US; we find that IBM is a weaker competitor in the UK than in our other markets because it does not dominate the UK market overall to the same extent as in other countries."

"We started selling commercial systems in the UK first; that was with an office in the City of London. Today we market them throughout the UK, and in France, Germany, Switzerland, Holland, Scandinavia and one or two other countries," he says.

"Germany is our number two European market, but our commercial business is not as strong there as in the UK because of the

presence of indigenous competitors, particularly Nixdorf and Kleinze."

"France comes third, but SEMS is a keen competitor there, and CII-HB also makes a difference. SEMS is particularly strong in the technical market, and French government influence helps them. But you can always compete with an outstanding product," he smiles.

"Italy was a late developer, but it is coming along fast now. In fact we seem to do particularly well in countries with weak currencies."

DEC is still of course primarily regarded as a company operating in the scientific and technical markets, but this image is growing ever wider of the mark.

"The scientific side is still growing, but at a slower rate than our overall 40% growth figure," says Shingles.

In fact, with governments cutting back expenditure all over Europe over the past two or three years, the scientific, medical and laboratory business has grown faster than we expected."

From a zero base in 1970, commercial systems, which include networks and OEM sales for business applications, now represent 40% of DEC's business.

"In Europe, we started in the commercial market in the UK in 1972, just in the City of London. "Since then it has expanded to cover the whole of the UK, France, Germany, Switzerland, Holland, Scandinavia and one or two smaller markets."

"We set the same profit goals for all sectors of our business, and broadly all areas are comparably profitable."

"Most commercial business is done through OEM systems builders, but we do sell the DECdata system line direct to large end-users who want several systems. We are providing better and better tools in the commercial market, and the TRAX software is an example of this."

At the top of DEC's line are the DECsystem-10 and 20 36-bit mainframes, which represent something under 15% of the company's business worldwide.

"We are still making good profits on these machines, and the business is growing at the

same rate as our business overall, but it is difficult to sell large systems in Europe because of the presence of competitors like ICL, Siemens and CII-Honeywell Bull," says Shingles.

However, the new low-cost DECsystem-2020 got off to a very good start; it is offered as an OEM product, an unusual marketing move with a mainframe although the IBM 4300 series looks likely to be bought by the same kinds of customers. Even without discounts, Shingles sees the 2020 as an attractive machine for bureaux.

"The reputation of our 36-bit machines helped it become a big success from the start, particularly in the bureau area," he says.

Just below the 2020 is the VAX-11/780 32-bit minicomputer.

"The VAX has taken off pretty well, and the features are proving attractive to systems houses. It is mainly for technical applications, and is a particularly hot Fortran engine, lining up well against much more expensive machines from Control Data."

"There is a good VMS operating system with Fortran in native mode, plus the compatibility mode for all PDP-11 software; clearly people will buy it for VMS and for its power and speed, but software conversion from PDP-11 is not a big problem," he insists.

"A typical VAX costs about £100,000, and there is plenty of room for new models both up and down. There is a role for both 16 and 32-bit machines, and a low-cost, more simple VAX is in demand from our customers."

"As to software, engineering software is already written, and the machine represents a dramatic improvement in performance, and is finding favour with IBM and CDC users who are new accounts for us."

According to Shingles, delivery on the PDP-11/34, which presented major problems 18 months ago, is now down to 90 days.

"We don't think we suffered greatly from the long deliveries we had to quote, but you never really know what you have lost," he says.

Perhaps the biggest event in the minicomputer field over the last three years was the arrival of IBM with Series 1. How did that affect DEC?

"The initial reaction to Series 1 was that at last IBM had done what everyone had predicted for years. At first there was a big flurry of activity, and people are now in process of evaluating just what it is."

"Series 1 is aimed directly at the traditional OEM, and over

the next few years, IBM will learn all the things it knows it does not know about that market."

"The arrival of IBM legitimises the minicomputer market, and although there was a hiccup when IBM announced Series 1, no dip in our figures was discernible."

Geoff Shingles has seen plenty of changes since he came into the computer business in the early 1960s.

"I was with Elliott Automation in 1962-63, and at that time they were thinking of making smaller computers such as the 903. But there was little enthusiasm for small computers at that stage."

"I joined DEC 13 years ago in 1965. At that time it was a £5 million company, and the UK could easily have competed; DEC, Data General, Hewlett-Packard had yet to get established, and it would have been possible to have grown up with them. But it is hard to believe that the UK could buy a place at the table today."

Expressing surprise that little mention had been made in the discussion of microcomputers,

Shingles turned to the bottom end products — the LSI-11 line.

"I don't believe that these machines are a survival issue. We could still be around without them. But they are very important products and the key to much of our future business. In an area that present-day minimakers have to deal with, he concludes."

George Coggan, head of the diversified Gamma Associates systems and computer group in the UK, often recalls that Geoff Shingles sold him his first DEC minicomputer when Coggan was working at Nottingham University. The machine arrived on the back of Geoff Shingles' motorbike.

It is a long way from Nottingham and selling off a motorcycle to presiding over the Europe-wide marketing operations of a \$1,000 million-plus company in the rarefied air of Geneva.

But the change in Geoff Shingles' lifestyle mirrors exactly the metamorphosis of Digital Equipment, the computer company which grew big by thinking small.

LETTERS TO THE EDITOR

User participation in systems design

IN Computerview (Computerview, March 22) you discuss the possible loss of jobs arising from word processing. It is probable that the successful exploitation of microelectronics, including word processing, will displace some people from their current jobs, and result in very different tasks for those who use the new systems, or alternatively, that the same number of people will be able to increase their productivity appreciably.

If efforts are not put into expanding employment in other fields, there could be growing resistance to microelectronics. Consequently, it must be in management's interest to look for ways of creating profitable employment for the people who may be displaced by the new technology.

I am glad you agree that user participation in systems design is in management's interest. However, this is not happening in practice, for two main reasons.

Many system designers are technically motivated, and do not see user aims clearly enough; and secondly, there is no generally acceptable methodology for organising effective user participation in system design.

NCC is working with Manchester Business School to provide suitable courses for all parties to the system design process.

For those who are interested, however, there are two books already published that are relevant to this subject: A participative approach to computer systems design, by

Enid Mumford and Don Henshall, Associated Business Press 1979; and Computerisation guidelines, by H. F. Farrow, NCC 1979.

ANTHONY STEELE
National Computing Centre,
Manchester.



WHAT are believed to be the first samples of a 64K bit RAM shipped into Europe have been delivered to ICL by Motorola and initial testing has been concluded successfully.

Bill Talbot, ICL's director of technology (centre) is seen here holding one of the first samples of the device with Motorola's UK marketing manager Mike Alderson (left) and European NMOS operations manager Doug Dunn (right).

Talbot said that ICL were "Surprised and delighted" to find that Motorola was the first to ship 64K RAM parts for testing.

There are no plans at present to start production of the memories in the UK.

Research: Is it useful?

THE British Computer Society Specialist Group on Formal Aspects of Computing Science has recently circulated a questionnaire to over 600 chief programmers in England and Wales.

The aim of the questionnaire is to find out whether programmers in user installations think research in computing and data processing is useful or not. Further, we would like to know the areas of computing where research

could help them.

We would obviously be interested in the views of your readers and copies of the questionnaire can be obtained from me.

D. SIMPSON
Chairman,
BCS-FACS Group

Department of
Computer Studies,
Sheffield City
Polytechnic,
Pond Street,
Sheffield S1 1WB.

IBM switching system

YOUR report on the introduction of the IBM 1750 switching system (CW, March 22) says, "Both systems (ie the 370 and the 1750) use analogue cross-point switching with reed relays and frequency division multiplexing". In fact the

technology used in the two systems is solid state electronic crosspoints with space division multiplexing.

A. B. CLEAVER
IBM (UK),
North Harbour,
Portsmouth.

Videofiche takes off

From front page

document scanner that should cost no more than £3,000, cheap enough to install at a bank branch. The company believes that Videofiche could easily receive and sort cheque images transmitted from remote branches.

The company's first big banking customer, Crédit Communal de Belgique, is installing a centralised system in Brussels with a scanner reading cheques, transfer forms and accounting and share documents.

An important feature of the Videofiche scanner is that it employs a charge coupled device array instead of optics to capture the image of a document, the image being made up of 750 lines each with 1,000 dots. The system avoids digitising white areas by simply recording start and end indicators.

Integral micro-processor-based recognition logic picks out computer processible data from the rest of the digitised image. Such data could be reference numbers for branches, accounts or serial numbers of documents.

The images are stored on a 300 Megabyte disc from which they can be retrieved under the control of a General Automation 16/440 minicomputer by up to 16 video terminals.

The system software splits the screen of each terminal and locates the document image on one side. The operator can then inspect the image and key in any data that could not be recognised by the scanner, such as a handwritten amount.

Data captured by the system at Crédit Communal will be validated by the bank's IBM 370 mainframe with which Videofiche will communicate in 3270 mode.

Part Exchange Your 33 or 390 ASR for a New ZIP ASR

We will reduce the price of our popular ZIP ASR by £300 to £1,500 if you offer us a 33 or 390 ASR in part exchange before the end of May 1979.

We started selling the 33 ASR in 1966 for around £375.

Many of these terminals and others supplied over the ensuing years, are still giving stalwart service.

However, the time may be right for you to upgrade in speed to 30 characters per second. The ZIP-30 ASR can be employed as a direct plug-in

replacement for the earlier machines and can even use the same stationery. It can run at 10 or 30 characters per second and can be supplied with a variety of

options, such as red/black printing, 132-column platen, friction or sprocket feed, and ASCII, EIA, EBCDIC or Baudot codes.

Some versions can be switched to operate on either of two codes.

The ZIP-30 ASR is designed and manufactured in Europe by Europeans to meet European standards.

Data Dynamics Limited
Data Dynamics Group

Head office
Data House
Springfield Road
Hayes, Middx.
Tel: 01-458 5781
Telex: 836428

Manchester
320 Mosley Road
Levenshulme
Manchester M18 2LM
Tel: 061-224 3306/7
Telex: 331-226 021/2

ANSWERPHONE FOR AFTER HOURS SERVICE CALLS ARE:
01-573 2694 061-224 3306 031-728 0201

Special travel arrangements to visit the Compec Europe Exhibition (Brussels)

IPC Electrical-Electronic Press Ltd., the world's largest publishers of computer, electrical and electronic journals, have made special arrangements for readers wishing to visit the Compec Europe Exhibition. The cost includes travel by scheduled airline from

Hatherton * accommodation has been reserved at the Sheraton Hotel, Rogier Place * arrival and departure transfers * admission to the exhibition * serviced tour manager.

To obtain a brochure and booking form, cut out the coupon and return it to the nearest branch office or to the following address:

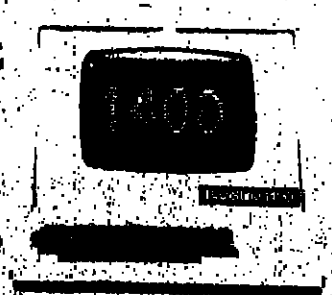
Tour A May 6-May 11 1979 (5 nights) at the Sheraton Hotel from £205.00
Tour B May 8-May 10 1979 (3 nights) at the Sheraton Hotel from £140.00

Please send details of the tour indicated above.

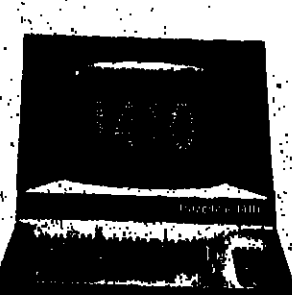
NAME: _____ CAPACITY: _____
ADDRESS: _____ TELEPHONE: _____

Hazeltine

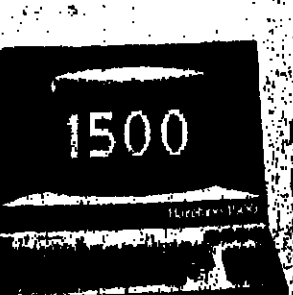
Just Right
Terminals



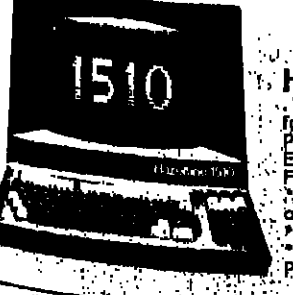
H1400
Just Right
for data enquiry and data entry applications.
LOW COST, HIGHLY RELIABLE.
Features include:
* 24x80 Screen Configuration
* 64 Displayable characters
* Cursor addressing and sensing
* Remote Commands



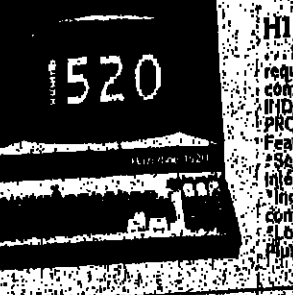
H1410
Just Arrived!
for numeric data entry applications.
1400 ECONOMY 1300 STYLE.
Features include:
* Separate numeric pad
* Self test feature (also 1400)
* Enhanced cosmetics
* Plus all the 1400 features



H1500
Just Right
for online data entry applications.
1400 ECONOMY 1300 STYLE.
Features include:
* Separate numeric pad
* Self test feature (also 1400)
* Enhanced cosmetics
* Plus all the 1400 features



H1510
Just Right
for buffered screen formatting applications.
PROTECTED FIELDS LOCAL EDITING.
Features include:
* Transfer Page, line or batches
* Select Function Key Mode
* Cursor control keys
* Plus all the 1500 features



H1520
Just Right
for VDU with online formatting applications.
INDEPENDENT CONTROL PRODUCTIVITY.
Features include:
* Serial and parallel printer interfaces
* Independent printer communication
* On-line or off-line printing
* Plus all the 1510 features

Hazeltine
Hazeltine Limited, Terminal House, 14 Peterborough Road, Richmond, Surrey TW2 9PA. Tel: 01-946 3111 Telex: 920592

I am interested in model(s) 1400, 1410, 1500, 1510, 1520. Please send literature and arrange sales visit.

Name: _____
Position: _____
Company: _____
Address: _____
Tel No: _____
Fax No: _____
Is Hazeltine or your local distributor?

Contact
Steve Bass

market

COMPUTER BROKING SERVICES LIMITED

DEC PDP 11/05, 11/10, 11/34, 11/35
PROCESSORS AND PERIPHERALS AVAILABLE FOR
IMMEDIATE DELIVERY FROM STOCK.
Ring Gordon B. Epps on 01-602 4502
or write for further details
214 BLYTHE ROAD LONDON W14 0HH
TEL. 01-602 4502

I.B.M. HARDWARE

SUN COMPUTER SERVICES LIMITED

Specialists in:
Discontinuance Installation Planning
Installation Relocation
Reconfiguration Feature Supply
Transport Storage

Of all IBM 360/370 systems

Don't move your IBM equipment before contacting us. Our
fast, efficient, economical service ensures minimum
downtime and guarantees return to IBM maintenance.

TEL. 01-979 9824 TWX: 27975 Toptel G

FOR SALE

BCL MOLECULAR 18 COMPUTER

MK II (6 ME) 24K 2x1600 Disk Drives
CDC 400 Printer. CDC VDU Teletype
Paper Tape Punch / Reader

Further details and tenders contact:

David Padley, Operations Director

Telephone: Sevenoaks (0732) 51174

CONTRACT or PERMANENT

We are the Specialists!
ANALYSTS PROGRAMMERS OPERATORS
VDU/KEY PUNCH OPS DATA CONTROLLERS

FOLIVE
Computer Services Limited
01-487 5781
(unpub. only)

PDP 11/04 11/34 11/60
BASED COMPUTER SYSTEMS

FAST DELIVERY
KEEN PRICES

New
Hardware

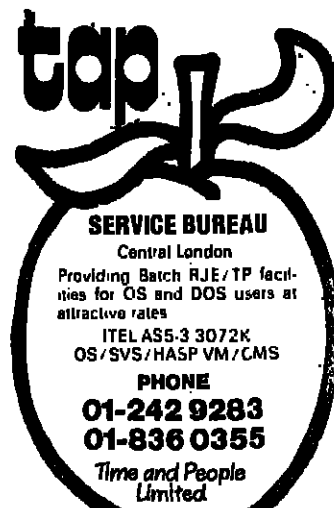
**FROM
SYSTEK**
111 HOUSE, HIGH ROAD
NORTH FINCHLEY, LONDON N12
0AZ
01-349 2911
Telex: 28227

WE BUY CASH

IBM 3333-011
IBM 3330-011
IBM 3350-002
IBM 3350-002
IBM 3420-008
IBM 3803-002
IBM 3188-4MB

offer with price and date
of delivery to:

Datenverarbeitung
Klaus Hubner GmbH
Reinsburgstr. 57
D-7000 Stuttgart 1
Tel. 711-618676



SERVICE BUREAU

Central London
Providing Batch RJE/TP fac-
ilities for OS and DOS users at
attractive rates

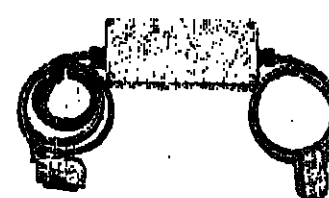
TEL. 01-242 9283
01-836 0355

Time and People
Limited

TWO COMPLETE MICRO COMPUTERS

each comprising Motorola 6800 CPU 40K bytes memory (2 times 16K +
2 times 4K) 4K byte E Pict (4 times 1K) twin 256K byte floppy drive 12
inch monitor screen keyboard with numeric cluster to be sold with a set of
spare boards and a test box.

To view contact Trevor Boyce on 01-930 1891. No reasonable offer
refused.



Modern Barrier Units
Competitive Prices. Fast delivery
from
K.V.A. Engineering Ltd.
Baintree House
Baintree Road
South Ruislip
Middlesex
Phone: 01-841 2467

FACTORY FRESH T.I. 810 PRINTERS 2 WEEKS DELIVERY

150 cps 132 col. bi-directional with sprocket feed and forms
length control. Standard RS232C inset, paper width 3" to 15".
T.I. retail £1450. Our Price £1350 ex. VAT

ABACUS COMPUTER LIMITED
62 New Cavendish Street, London, W1
01-580 8841

COMPUTER ICL (1971)

Magnetic record heads — C DES C.
Actuators, motors, fans, hammer-
heads, meters, drive spindles,
relays.

St. Albans (0727) 69856
Shepherd Sound Equipment
Ltd.
18 Foxcroft
St. Albans AL1 5BW
Herts.

N Nelson Computer Services Ltd

IBM 029 A22 Print Punch

IBM 059 Varifier

Univac 1710 VIP

EDS 60 D.P. Cabinets

Wilkes MDL Decollator

Wilkes MMB Burster

PFE 1104 Guillotine

Cave and Tab A Frame Decollator

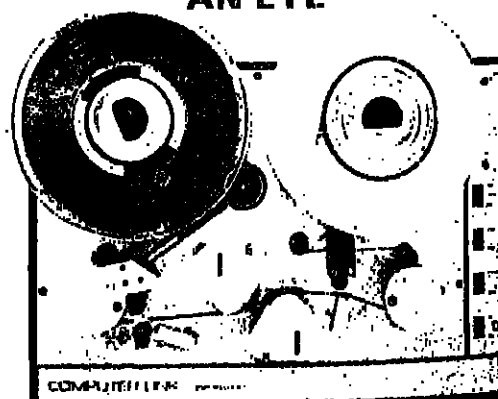
80 COLUMN HAND PUNCH

Ex-stock from £95 + VAT

Ring Mike Jacques on Rossendale (07062) 29125
ST. JOHN'S COURT, RAWTENSTALL, LANCs, BB4 7PA

COMPUTER? LINK (UK)

NOW HAVE THE FIRST
MAGNETIC TAPE CLEANER WITH
AN EYE



The eye scans the tape for physical de-
fects, without erasing any recorded infor-
mation.

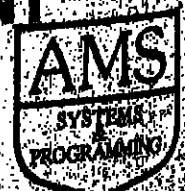
Computer-Link (UK)
38A Georgiana Street, London NW1 0EB
Call us on 01-267 5195

The Trade Mark No. 1024336 consisting of the word
DATAGRAPHIX and registered in respect of "Com-
puters and apparatus for microfilming the output of such
computers; apparatus for recording and printing com-
puter output data and for producing microfilm in
microfiche viewers; and parts and fittings included in
Class 9 for all the aforesaid goods; all for sale in England,
Wales and Scotland" was assigned on 18 October, 1978, by
Datagraphic, Inc. of 1895, Hancock Street, San Diego,
California, United States of America, to Datagraphic
Limited, of New Lodge, Drift Road, Windsor, Berks, SL4
4RQ WITHOUT THE GOODWILL OF THE BUSI-
NESS IN WHICH IT WAS THEN IN USE.

CONTRACT or PERMANENT

Analysts / Programmers / Operators
Data Control Clerks always
available for U.K. and Overseas

8 MOORFIELDS, LONDON EC2Y 9AA
Telephone: 01-638 9319 & 01-606 4975



place

FOR SALE

For
Advertising Rates
PHONE 01-261 8293

1900 TIME FOR HIRE

Computer time is available on a 96K ICL
1903T, with EDS 60's, 7- and 9-track Magnetic
Tape Decks, 2 Card Readers and 2 Line
Printers.

Operating System: GEORGE 2 (enhanced)
Communications (7020/7181) or Offline
1500's
Complete shifts available if required
Rates negotiable

Contact:

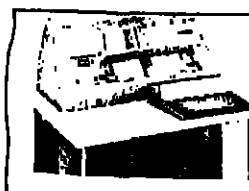
J. W. Ferguson
Computer Services Manager
MATTHEW HALL GROUP SERVICES
LIMITED
PO Box 45G
60 Charlotte Street
London, W1A 4SG
Telephone: 01-637 5252

IBM HARDWARE BOUGHT

Any machine, any age
SUN COMPUTER SERVICES
Tel. 01-979 9824
TWX: 27975 Toptel G

COMPUTERS BOUGHT AND SOLD

E & B EQUIPMENT LTD.
Tel. 0783-293818
Telex 537763



CAL COMMERCIAL DATA LTD., Downham Road, Ransdon Heath, Ollingbury, Essex

IBM IBM IBM
029, 025, 055 EX-STOCK
* All fully refurbished
* Free warranty
* Guaranteed maintenance
* Various code options available
Tel. 0268-710292

AN ESTABLISHED SOFTWARE/ SYSTEMS COMPANY

in the South-East of England seeks a business relation-
ship with a larger company in order to facilitate expan-
sion. It could be of interest to a company wishing to
establish its own "Computer Systems Division" or
provide an overseas company with a UK base.

Principals only please.

BOX No. 1019

Distributors / Dealers

We are one of the most important
manufacturers of computers in the country
which has been the source of most
electronic breakthroughs — Japan.

We are going to introduce our small
business computer in Europe. And
therefore we are looking for qualified EDP-
Distributors / Dealers in the UK market.

Applicants should have long experience, a
successful record of selling computers on
the UK-market and a reliable distribution
and service organisation.

If you are interested in discussing this
opportunity please write to: Box No.
1020

WEBSTER D/P SERVICES LTD.

FOR USED DP EQUIPMENT
BUY OR SELL THROUGH WDP

NEW DE LUXE 80 COLUMN
HAND PUNCHES (EX-STOCK)



WDP

01-464 9011

WEBSTER D/P SERVICES LTD.
65 WIDMORE ROAD, BROMLEY
KENT BR1 3AA

KEY OPERATIONS ASSISTANCE LTD.

CONTRACT

★ OPERATORS ★
★ PROGRAMMERS ★
★ PUNCH OPERATORS ★

LEADING SUPPLIERS OF
CONTRACT OPERATIONS
PERSONNEL THROUGHOUT
EUROPE

SAVE TIME AND
MONEY
CALL US FIRST
LONDON
01-439 755/1
MANCHESTER
061-833 9355/7

EUROPS
22 NOEL STREET LONDON W1

Knight is right for contract staff

Knight Computer Services Ltd.,
14 Old Park Lane, London W1Y 4NL

Knight 01-491 4706

DEC DEC DEC DEC DEC

STOCK TO CLEAR AT HEAVILY DISCOUNTED
PRICES

PDP 8A — 400 Series, 2 off, 32K words code
memory. Other options available as required —
£2,000

PDP 11/34 and 11/04 Systems and Peripherals for immediate
delivery. Also various Refurbished PDP8 and 11 Systems, and
Modules from stock

S.K. SYSTEMS LTD.

Stonewage Road, Hitchin, Herts.

Telephone (0462) 35267

Telex: 826715 S.K. SYS.

CASHnCARRY Dumb Terminal for just £545

why pay more!

Penny & Giles Data Recorders Limited

Muddford Churchchurch Dorset BH23 4AT

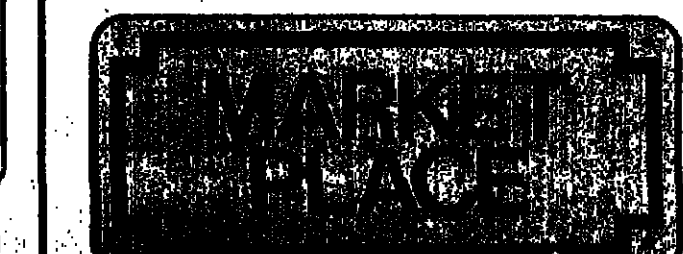
Telephone: Tighfield (042 52) 71511 Telex: 41266

TWO COMPLETE MICRO COMPUTERS

Each comprising Motorola 6800 CPU 40K Bytes Memory (2 times 16K + 2 times
4K), 4K Byte E Pict (4 times 1K) twin 256K Byte floppy drive 12 inch monitor
screen keyboard with numeric cluster to be sold with a set of spare boards and a test
box.

To view contact Trevor Boyce on 01-930 1891. No reasonable offer refused

LOOK AT THE CROWD IN OUR



Our Market Place feature (today on page 14-15) enables
you to reach a vast 82,000 circulation of whom no less than
81% personally request their copies. No wonder we attract
more display advertising than any other computer journal.
35% of all computer ads appear in our pages — and Market
Place is the most cost-effective of all for leasing, 2nd hand
hardware, maintenance services, wholesale goods, and
contract staff. The rates are:

3.35 s.o.p. £6.35
36-98 s.o.p. £7.70
99 s.o.p. and over £8.05

Series discounts: 7-5%, 13-10%, 26-15%, 52-20%

COMPUTER WEEKLY

dm

DIRECT DATA MARKETING
LTD.
44 HIGH STREET
BRENTWOOD
ESSEX

Buy, Rent or Lease
Maintenance Provided

TERMINALS
DEC L30
LS 120

BURSTERS/
DECOLLATORS
Tel: Brentwood — 228378
(0277) 213275

CARD PUNCHES
IBM 020 059
VR /VP (incl.
Reproducing)

FOR SALE

Date: General Eclipse C/330
available July

2 C/330 processors in 2/BAY
cabinets, each with a 192
K memory.

Communications channels
Memory expansion channels
System console interface
Real-time clock

Consign: B. M. Hall, DPM
H. R. R. R. Ltd.
Pough Lane
Hawford
Tel: (0432) 6411

**NEXT TIME
REMEMBER
PARKMAN'S**

WE PRODUCE OUR MULTIPLE AND SINGLE
PART BUSINESS FORMS ON
MULLER-MARTINI
CONEL MULTIFORM AND
HAMILTON COLLABORATING MACHINES.
HIGH QUALITY CONTINUOUS AND
CUTS SETS

ROGER PADDY
SALES LIAISON OFFICER
WITH YOUR REQUIREMENTS AT
PARKMAN BUSINESS FORMS
DARTLE PARADE, MOWMOUTH ROAD
LONDON, ESWAY TEL. 0251 93434
TELEX 45338

Peripherals market to decline in 1980s

—SAYS US CONSULTANCY

THE market for computer peripherals in the US will decline in dollar value in the 1980s despite a massive increase in shipments of mini and microcomputer systems. This is one of the main predictions made in a report* from the US consultancy International Resource Development Inc.

'Micros will keep young people in work'

UNION leader Moss Evans hailed the microprocessor chip as a means of keeping young people off the dole, when he spoke at an election meeting with Energy Secretary Tony Benn in support of Coventry S.W. Labour candidate Mrs Audrey Wise.

Afterwards Evans, general secretary of the Transport and General Workers' Union, told Computer Weekly that if the Tories were elected, they would rely on the private sector for funding further development of chips.

In his experience, this would not happen, adding that further developments in microprocessors must have some State support.

He believed that the micros were a means of improving the quality of life and urged the next Labour Government to make micros work for Britain.

The report looks at 38 different categories of peripheral equipment, the combined shipments of which had a value of nearly \$7 million in 1978.

There will be price cuts in most of the categories, according to the report, so that in many cases the expected increase in unit shipments will not compensate for price reductions. Looking at specific product types, the report predicts that the "skyrocketing" growth of floppy disc drive sales will continue, while reel to reel tape drives will be saved from extinction only by the spread of Winchester technology in disc drives. Some form of removable magnetic storage is needed to load the fixed disc.

Spectacular growth is predicted for sales of printers designed to be used with mini and microcomputer systems and the rapid upsurge in terminals will continue.

But the excess of supply over demand which has persisted in some sectors like teletypes, over the last three or four years is likely to come to an end as manufacturers like Digital Equipment, Teletype-Corp and Data General bring massive new assembly plants into operation.

The report sees IBM

remaining the largest supplier of peripherals as well as processors, but notes the erosion of IBM's medium/large market by plug compatible peripheral and processor suppliers like Storage, Technology, Memorex, Amdahl and Intel.

It also believes that IBM's prospects if it enters the microcomputer systems market will be uncertain because of the presence of Tandy in particular, and potentially Texas Instruments.

*Computer Peripherals in the 1980s, \$1,265, 278 pp, International Resource Development Inc, 125 Elm Street, PO Box 1131, New Canaan, Connecticut 06840, USA. Tel: 0101/203/968/5615.

Warrants out for two in bank wire transfer

HOT on the heels of Stanley Rifkin's jail sentence for bank fraud via computer (CW, March 28), arrest warrants have been issued for two employees of another Los Angeles bank who allegedly transferred \$1.1 million from their computer to New York banks in order, like Rifkin, to buy diamonds.



THESE children, from Ramsay School in Halesford, Essex, travelled to Sheffield to see a large real time order processing system in action. James Neill, appropriately for Sheffield, makes hand tools, and uses its Univac 1106 to handle stock control, orders, invoices, and packing notes, by means of online VDUs.

The children also saw a new £1 1/2 million Univac 1100/80, which is to replace the 1106, in the process of being installed in Neill's computer room.

The trip had been arranged to supplement classroom work on computing with knowledge of how a big commercial system works in practice. Our picture shows David Heythorne (right) from Neill's Computer Division with a group of the Halesford pupils.

The two men, Michael Kelley and Richard Warren, have been eluding the FBI's strenuous efforts to catch them.

It appears they transferred, in three separate lots, money from the accounts of a Los Angeles insurance broker and a hotel to that of Kohinoor International, a New York diamond dealer. Warren is alleged to have contacted Kohinoor in the guise of an agent for a group of investors who wanted to buy diamonds.

Kelley was secretary to a senior official at the City Bank in Los Angeles, and apparently this gave him the opportunity to find out the secret passwords necessary to effect the wire transfer.

Kode XL40 orders

KODE has announced that three orders worth £100,000 have been placed in the UK for the XL40 data entry and file management system since KODE started selling it here three months ago. The XL40 is built in the US by Pertec.

Memorex on the move

MEMOREX has moved its UK headquarters from Hounslow to Staines where the company has just moved into premises that include 11,000 square feet of office space and two temperature controlled warehouses totalling 40,000 square feet. Memorex has also replaced its Coventry and Leicester offices with one office at Nuneaton.

A REVOLUTION IS HAPPENING IN DATA COMMUNICATIONS STANDARDS

HEAR leading international authorities from SPERRY UNIVAC, U.K.; TRANSPAC, France; BRITISH POST OFFICE; SOCIETA ITALIANA PER L'ESERCIZIO TELEFONICO, Italy; SWEDISH TELECOMMUNICATIONS ADMINISTRATION; DEUTSCHE BUNDESPOST TELECOMMUNICATIONS ENGINEERING CENTER, Federal Republic of Germany; INTERNATIONAL COMPUTERS LTD., U.K.; IRIA, France; and Program Chairman H.C. Politt of NATIONAL COMMUNICATIONS SYSTEMS, U.S., discuss the organizations and interrelationships of the CCITT, ISO and ECMA data communications standards bodies.

Data Communications, a McGraw-Hill magazine invites you to a two-day Conference, June 27, 1979, at the Brussels Hilton, Brussels, Belgium.

PREPARE yourself for a new era of technology with the emergence of revolutionary public data networks throughout the world by attending this well-organized, non-nonsense, detailed Conference.

LEARN ABOUT:

- the physical link elements
- link control protocols
- specific public data network interface applications
- how individual pieces of data communications equipment and protocol software relate to each other
- and much, much more.

Dora Bell
McGraw-Hill
34 Dover Street
London W1X 3AA, England

Please send information on the Conference to:
Data Communications Standards Conference

Name _____
 Title _____
 Company _____
 Address _____
 City _____
 Post Code _____

NEWS IN BRIEF

PO lowers profit target

THE profit target for Post Office Telecommunications is 5% a year for the next three years, 1% lower than the target for the three-year period ending March 31. The revenue from data services is only 1% of the total for telecommunications, and although this is growing, the ratio is staying the same. In 1977, data services revenue was £3 million and the total net was £10 million. Last year's performance is expected to achieve a similar success.

Name change

JACQUARD Systems of High Wycombe has changed its name to AM Jacquard Systems Ltd following the acquisition of its US parent company, Jacquard Systems of California, by AM International last December. Jacquard builds the J100 and J500 systems for data and word processing.

System 2000

MRI's System 2000 data management system has been made available by London-based Computing Systems, which joins SIA in offering the system on a bureau basis in the UK. Mounted at the Kansas City data centre of United Computing Systems, the DBS is accessed by UK users via Linc transatlantic data link.

Atomic law

INFORMATION on law relating to atomic energy is to be made available to the public by the Atomic Energy Research Establishment, Harwell. A new Nuclear Information System (NIS) is a new web-based system which will be available to the public via a terminal at Harwell. The system will be used to determine how input would be processed by what problems would be raised by the non-scientific nature of the data.

Olympic message

A CONTRACT for nine S2 16.85 and 16.40 minicomputers for use in processing data for the Olympic Games in Moscow has been signed between Sodex-Tel, a member of the Thomson group of companies, and Electronique, the Soviet procurement agency.

TIM PALMER LOOKS AT SOME OF THE PRODUCTS AT HANOVER FAIR

The shift to software finds expression at the show

THE short history of the computer industry has been one of rapid evolution rather than revolution, but a revolution is now taking place — the inexorable shift of value out of hardware and into software. Research and development expenditure is a key indicator to the way things are going to go, and every company one talks to today is now spending at least as much on software development as on hardware, and many have tipped the balance firmly towards software.

The Hanover Fair, which opened yesterday, Wednesday, and closes on Friday, April 27, has this year consolidated its position as the world's premier computer exhibition by acknowledging this revolution and setting up a section devoted to software at which 30 companies are due to exhibit.

Hanover '73 provided the launchpad for the most successful computer product ever introduced by any of the constituent companies which make up ICL — the 2803.

At that time, ICL Germany was one of the company's most troublesome subsidiaries, chronically unresponsive to all management efforts to make it profitable. Today, following the merger of the local ICL and Singer companies, the situation is transformed, former ICL customers are buying ex-Singer products, Singer customers are buying from the long-standing product line, and ICL is hoping that this year's show will

provide an even more successful launchpad for a new model in the 2803 series — the 2805.

Information is currently to hand on only a few of the thousands of computer products which are on offer at Hanover this year, but items which are of particular interest include the new bottom-end Siemens 7,000 series machines — the 7,706, 7,708 and 7,718 — which offer a low-cost entry into Siemens' mainframe line and the BS2000 operating system. The three small machines, announced even before the IBM 4300 line but addressing the same market, will undoubtedly spearhead Siemens moves into countries where it is at present not marketing, and that could include the UK.

Also worth tracking down is the German business systems company David Datentechnik, DDC. Starting off with a Data General Nova-based system with widespread use of ancillary microprocessors for peripheral and terminal control, DDC, which opened its doors less than four years ago, has grown up at a phenomenal rate, and is now building its own bit-slice processor, using the ubiquitous AMD 2801.

The Eastern Europeans traditionally turn out in force at Hanover, with Bulgaria showing discs, Poland showing small computers and printers, and East Germany showing office machines and process control minis. But ahead of the field with East-West business in general

purpose rather than office computer products are the Hungarians, who have made a successful entry on to the West German market with their display terminals and are keen to expand their trade in this field.

The Japanese also exhibit at Hanover in increasing numbers

unknown in Europe are following in their wake, and Hanover provides an unusual opportunity for students of the world computer industry to make personal contact with people who are au fait with the Japanese scene.

West Germany's one surviving independent



The lynchpin of the Mohawk Data Sciences product line these days is the MDS Series 21, the distributed processing system which combines data entry and file inquiry at multiple workstations with local processing in the proprietary Cobol-like "Moba" language. Zilog 280-based, the Series 21 includes three models, the 20, the 40 and the 50; the picture shows a 21/40, which can operate as a stand-alone computer system.

each year, in general to seek agents and evaluate market acceptability of their products. Nippon Electric has been at the forefront of this move, but other manufacturers of small computers at present almost

minimaker, Dietz Computer Systems, remains profitable and confident that it can continue so for many years to come. The bit-slice microprocessor has dramatically reduced the cost of remaining viable in the

minicomputer business, and Dietz has been making full use of it.

Principal novelties from Dietz are a new model of the basic machine, the Dietz 621, and a floppy-disc terminal system for decentralising applications around a host 621 machine.

The new model is called the 621 Compact, which is a disc-backed interactive computer system offering, according to Dietz, especially attractive price-performance characteristics. Ansi 74 Cobol is now on offer with the 621 line, and the company is also demonstrating attachment to an X25 network using the Dixos networking software on the bit-slice Micro-621.

The new terminal system is the Dietz 600/20 which is floppy-disc backed and can be used as an interactive terminal to other Dietz systems.

Dietz is also moving strongly into the Computer-Aided Design field via its Technovision subsidiary, and is demonstrating its capability in this field at the show.

New from Centronics is an undefined by nine matrix printer, the 753, which the company believes produces fully acceptable output in word-processing applications. It features a 130-150 cphs print speed, proportional or standard width spacing, and line justification. The company is also offering the new 704 communications printer which has an integral V24 interface.

Facit is offering a new intelligent printing terminal based on its Facit 4540 matrix printer. Called the 4540 T, it is designed for interactive applications, and the keyboard features a 20 character alphanumeric display. The Dataroyal label printer also appears, as the 4530.

As well as the usual array of V77 minis and BC/7.7 small business systems, Univac is giving a first airing to its new banking terminal subsystem, supplied by Bunker-Ramo and called by Univac the UTTS-480. New microprocessor-based models and the EMI 8800 intelligent tape transport make a first appearance on the EMI Technology stand, and the company is also giving the PIX Remote Computing Facility, designed to take the pain out of setting up a network around an IBM mainframe, its first German outing.

The full line-up of Data Recording Equipment products goes on show, including disc drives, floppy drives, matrix printers and VDUs.

Hot from Kienzle is the new low-cost VRC. Called the 1900, it is upgradable to models in Kienzle's successful 2000/2300 line, 7,000 of which have been installed world-wide.

Feller, a Swiss company, is showing its journal tape reader, which is designed for reading journal roll tapes and can handle OCR-A, OCR-B, IBM 1428 and NCR-400F characters.

MICRONA

Nuclear Enterprises
Micronova™ based
Camac Computer

Nuclear Enterprises Microna series of modules can be combined within a Camac crate to form a NOVA structured computer complete with Dataway access.

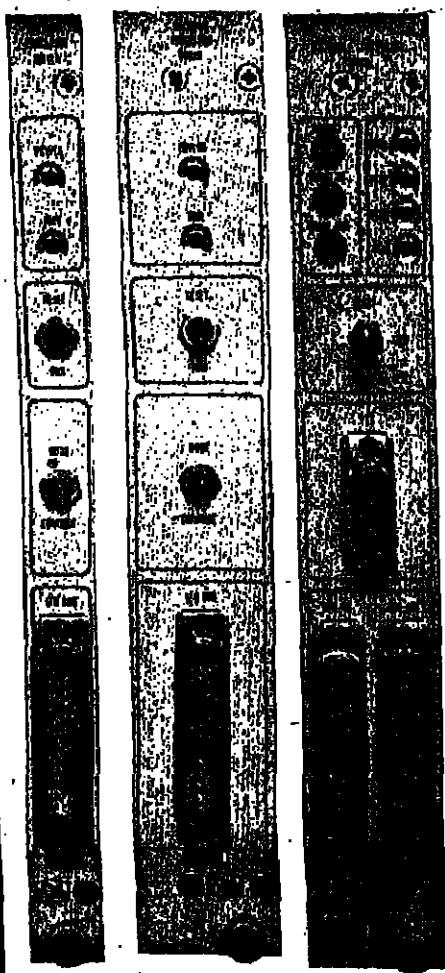
The 9081 Microna Processor is designed around Data General's MicroNova™ microprocessor chip. It is configured complete with 16K RAM (9081A) or 32K RAM (9081B), together with a PROM programmed for automatic program load. The Processor is connected to peripheral devices via a front panel serial I/O bus, and communicates with Camac via a 9089 Microna Controller. A series of printed circuit mounted switches allows the 9089 to be used as a Crate Controller in stand-alone systems, or as an Auxiliary Controller connected to a type L2 or A2 Crate Controller via its rear panel connected Auxiliary Control Bus. In distributed systems, furthermore, a whole series of 9089 modules may be interconnected within a Crate via the ACB thus permitting multiprocessor configurations sharing the same Dataway.

The controller is equipped with a 20mA serial interface in order to connect system monitor devices such as an ASR terminal or visual display unit. In simple configurations this keeps the initial system cost at a low level.

- Powerful NOVA architecture and instruction set with 16-bit word length and integral hardware multiply/divide.
- Integral real time clock and data channel.
- Serial front panel I/O bus access.
- Multitasking capability.
- Switched Crate Controller/Auxiliary Controller facility.
- Integral terminal device interface.
- Integral LAN encode and interrupt.
- Program load from link-selected peripherals.

NUCLEAR ENTERPRISES LIMITED

Bath Road, Broomfield, Reading, RG7 5PR, England. Tel: 0735 21 2121. Cable: Devistope Reading. Telex: 818475.



MICRONA is a registered trade mark of the Data General Corporation. Micronova is a trade mark of the Data General Corporation.

Croxley business forms

The names say it all. The range does it all.

Many of Britain's biggest data systems depend on Croxley business forms and Holdfast labels. They have for years. When precision is paramount (no ifs or buts) — that's when experience counts. When service is vital, that's when the John Dickinson production capacity and distribution network comes up trumps.

Listing paper, multi-part input and turn-round documents, OMR and OCR forms, continuous envelopes, computer labels (plus the business systems to store the output) — for all of these and more you can rely on John Dickinson Stationery, the experts, part of a major group with unmatched resources.

For samples, details or an informative discussion with a specialist representative, fill in the coupon.

John Dickinson Stationery

APSLEY, HEMEL HEMPSTEAD, HERTS HP3 9SS
Telephone Hemel Hempstead (0442) 421234 Telex 82462

DCG A member of the Dickinson Robinson Group

Holdfast computer labels



To John Dickinson Stationery, Apsley, Hemel Hempstead, Herts HP3 9SS

- ☐ Details of Croxley business forms
- ☐ Details of Holdfast computer labels
- ☐ Details of Croxley business systems, please
- ☐ Please ask your representative to seek an appointment

Name _____
 Position _____
 Company _____
 Address _____
 City _____
 Post Code _____

Users and makers back multifunction terminals

TELEPROCESSING is a Pandora's box, in the opinion of Edward Gistaro, senior vice-president of marketing for Datapoint.

"Once you start, you find that you want to do more processing at the remote site, add more applications and communicate with more people," he explains.

This view of the teleprocessing helps to explain the current interest in distributed processing and networks. It also accounts for the emergence of a new and powerful data processing tool — the multifunction terminal.

Users are migrating to multifunction terminals in a variety of ways, but a typical scenario might go like this: a company with centralised data entry decides to decentralise, putting its key entry terminals close to the source of the data for extra timeliness and input accuracy.

Here, the thinking is that the terminal operators will be more familiar with the data entered and will thus be able to spot input errors and correct them.

The next step is to economise on data entry and remote batch activity by consolidating both functions on the same terminal system.

Usually, the terminal will include a processor and, before long, limited local processing capability is added. Finally, the full potential of the terminal is used by first providing inquiry into host databases, and later by adding inquiry and management of local files.

In its full-blown maturity the multifunction terminal provides intelligent data entry, remote job entry, online and offline file inquiry and management, and stand-alone processing — plus the appropriate communications capabilities.

As with distributed processing, the standard bearer for these multifunction devices has been the intelligent terminal vendor.

Over the past couple of years, though, other suppliers have

been jumping on the bandwagon with a variety of approaches.

Traditional remote batch terminal vendors such as Data 100, for instance, began by adding data entry capability to its products. Likewise, suppliers of data entry terminals started incorporating remote batch functions.

Both groups have since built up the online inquiry and stand-alone processing features of the terminals.

Meanwhile, minicomputer suppliers are attempting to get into the act by building on their communications and processing knowhow and developing the appropriate terminal and software products.

Mainframe manufacturers have also been active in producing intelligent terminals, and in unveiling network architectures that make it easier for users to distribute functions among many or all terminals in the network.

Each approach has its strengths and weaknesses, based on the experience and origins of the vendors.

For instance, data entry vendors are typically strong on understanding user needs and tailoring the terminal system to those needs, but tend to be weaker in communications and stand-alone processing features.

Suppliers of minis and remote batch terminals, on the other hand, are usually strong in communications processing, but relatively inexperienced in dealing with end user needs.

More recently, another user alternative to achieving multifunction capability has arisen in the form of value-added network services.

One of the features of AT&T's planned Advanced Communications Service, for instance, is the facility for terminals with various protocols, speeds and codes to cohabit on a single system.

Also, ACS will allow users to customise such "communica-

tions processing" functions as data entry, RJE and inquiry/response to handle their specific applications needs.

Last October, as if in response to the threat from ACS and intelligent terminals, IBM made its blockbuster announcement of the 8100 Information System — a competitively priced product that incorporates extensive networking capabilities, advanced memory technology and elaborate and unbundled software.

Along with its 8100 announcement, IBM also unveiled its 3730 distributed office communications system, which in-

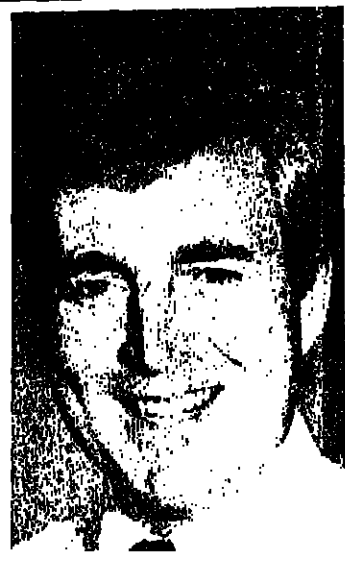
processing will become a vehicle for integrated information systems — systems that include the automated office as well as traditional DP activities.

He thought the fact that IBM called the 8100 an "information system" certainly suggested that it shared this view of the future of distributed processing.

Along with its 8100 announcement, IBM also unveiled its 3730 distributed office communications system, which in-

By Morris Edwards

Users are migrating to multifunction terminals, writes MORRIS EDWARDS. Opening what has been called a Pandora's Box, he surveys the growing number of suppliers of equipment in this field of teleprocessing.



Expected to find widespread use as nodes in either 303X or 370 host-based networks, the 8100 system can also operate as a stand-alone device or in conjunction with other 8100 systems in a point-to-point network.

Accordingly, it provides backup should the host become inoperable; and, through direct communications with another 8100, it can bypass the host in performing selected processing functions, thereby reducing overhead and freeing the host capacity for other uses.

Robert Fertig, technical director of Advanced Computer Techniques believes that distributed

cludes a text display station for keyboard entry and retrieval and a high-quality printer.

Supported by new models of IBM's 3791 communications controller, the 3730 is designed to tie into a host 370 for applications such as electronic document filing, retrieval and distribution, running concurrently with data processing applications.

Since the 3730 will be marketed by its data processing division rather than the office products division, IBM is seemingly convinced that the thrust for office automation will come from an organisation's data processing department.

Also, basing the office system around the 3791 controller adds credence to Fertig's belief that IBM's distributed processing terminals will be the nucleus around which the automated office will be built.

How are the traditional intelligent terminal suppliers responding to the challenge from these varied competitors? Seemingly by continuing to stress the multifunctional capabilities of their systems and, increasingly, by enhancing their networking capabilities.

Datapoint, for instance, has developed a networking tool called DSNet which permits a central Datapoint processor to use remote terminal files with all the facilities, access methods and programming ease that would be available if the files were local.

Also, the feature can be used in reverse when the remote installation requires central office data to accomplish its processing task.

Sycor is also emphasising multifunction capability and networking with its latest product offerings. Last May, the firm announced a new multifunction operating system that significantly enhances the performance of its top-of-the-line 445 distributed data entry and processing systems. Called Omnitask, the operating system provides users with 256K bytes of main memory in the 445 to perform applications.

In the networking arena, the firm's major offering is Sycorlink, a resource-sharing feature that permits linking of multiple processors and the sharing of all disc files and peripherals in the network.

Sycorlink is an option which can be added as a field upgrade to any Sycor 445 or 405 system. It allows users to transfer requests for files and access to peripherals from one system to another — transparent to the operator and the applications program.

Sycorlink networks can also communicate with each other or with a large centralised computer system in either asynchronous, bisynchronous or SDLC mode.

Four-Phase Systems has been

directing much of its distributed processing efforts into multifunctional work stations following the introduction in 1976 of a multifunction terminal processing package called the System IV/80.

Included in the Vision package is source data entry, inquiry and retrieval, local file management, report and document generation and local communications capabilities.

More recently, the firm has announced its Multifunction Executive, which permits stand-alone Cobol processing and word processing to be added to the Vision capabilities.

For word processing, the ForWord package can be used from any display station to transcribe dictation, report or write and edit directly from the keyboard. ForWord can also transmit and receive texts through communications with other computers.

Raytheon Data Systems is apparently aimed at large IBM users with its distributed processing systems, since it provides compatibility with IBM line disciplines and offers a broader choice of options than the industry leader itself.

For example, besides supporting bisync and SDLC, the firm supplies software packages that permit its terminals to operate under the X25 protocol with domestic and foreign public networks — something IBM has yet to introduce in the US.

Included in the communications options with its P1825 system are bisync protocol, 3270 emulation, 2780/3780 and 11asp multileaving for RJE. Its SDLC protocol supports batch and interactive transmission simultaneously on a single communications line with stream modems.

Raytheon was also the first US company to link 3270 terminals to public networks using the high-level data link control, HDLC, protocol of the X25 standard.

To do this, it replaced control and emulation programs in the IBM 3704/3706 front-end processor.

Turn to page 23

Multifunction terminals win support

From page 22

cessor with a package called DMEP-II, and loads Raypac software into local PPS-100 terminal controllers.

The PPS-100 is an intelligent terminal system that complements the PPS/1200 line and is reportedly one of the world's most popular intelligent terminals, with over 50,000 units installed.

For networking applications, a downline terminal control feature permits any PPS/1200 system to monitor and control, independent of and transparent to a host mainframe, either a network of PPS-100 terminals or other PPS/1200 systems under IBM 3270 protocols.

Such a capability makes database and resource sharing more

flexible and more cost-effective in large data networks, the company claims.

Also, a teletype concentrator allows users with large teletype printer networks to consolidate message traffic on the same lines used to support PPS/1200 communications. Capitalising on its acquisition of Lextron, Raytheon is also planning to integrate word and data processing into its multifunction terminal system in a similar manner to Four-Phase and IBM.

Raytheon is testing the attachment of Lextron's Videotype word processing units to the PPS/1200 system as peripherals that share large, common databases.

However, the firm has not yet decided whether the system will be marketed by Raytheon, Lextron, or both.

FINANCIAL NEWS ROUND-UP

UK operation sets pace for IBM global business

ALWAYS one of the last IBM companies to report its results, the UK subsidiary has just revealed that for 1978, turnover stormed ahead 31% to £759 million, and net profit 22% to £78 million. The improvements were dramatically better than the company's business worldwide, where net profit rose 14.5% to \$3.11 billion on turnover up

16% at \$21,076 million (CW, January 18). The UK thus contributes about 6.3% of worldwide turnover and 5% of net profit.

Exports of goods and services to other IBM companies also improved strongly, up 27% at £354 million. Shipments of the large-scale 3033 mainframe from Havant will have made a significant contribution to this.

New investment in fixed assets during the year amounted to £93 million, and the workforce grew 1,100 to just under 15,000.

Manufacturing capacity at both Havant and Greenock was expanded, and construction continued on the second phase of the Warwick regional marketing centre.

GEC 'bid' move

WEIGHING machine specialist Averys of Birmingham is still waiting for a positive bid from GEC, first mooted in December, when the electrical giant suggested it might offer 225 pence a share, and Averys rejected the offer. The possible acquisition is currently under scrutiny by the Monopolies Commission, and an indication that GEC intends to co-operate with the investigation is seen in the City as evidence that GEC is interested in going ahead with the acquisition.

PQ price freeze

FURTHER relief for hard-pressed telecommunications users has been announced by the Post Office, which has guaranteed to freeze prices for a further nine months to the end of 1979. The corporation is also planning to raise £250 million in the US, the reason for borrowing abroad being that interest rates are significantly lower in New York than in London. The loan will be used to pay off UK government loans, thereby saving at least £2 million a year in interest repayments.

US firms do well

AVX CORP, a US producer of multi-layer ceramic capacitors, had sales of \$83.7 million, earning a net profit of \$4.5 million, against sales and profits for 1977 of \$44 million and \$2.8 million respectively. The company expects sales and profits to increase at annual rate of more than 30%.

SILICONIX, a US semiconductor company, increased its European sales from \$12 million in 1977 to nearly \$20 million in 1978. The aggregate 1978 sales were \$43.2 million, earning a net profit of \$3.3 million. The company is planning a major capital expenditure programme in Europe during 1979.

TERADYNE, a US manufacturer of automatic test equipment, recorded sales of \$11.7 million with profits of \$12.4 million for 1978. Sales for 1977 were \$67.8 million earning profits of \$10.3 million.



How to close the 'Software Gap'

Many businessmen have been disappointed by the information they receive for strategic decision-making. It is often too little, too late and too expensive.

Filling the gap between the ever-changing needs of the user and what computer systems provide is really the key problem—a problem we at Cincom have done something about.

Cincom's family of information systems software closes the gap.

First, give the end-user access. Cincom's new T-ASK is an on-line interactive query facility for end users. Ad hoc and repetitive questions that once required special programming now no longer do.

T-ASK is a 'user-friendly' system. With easy to use commands, the user gains access to the data he needs through his own terminal.

He has the data he needs, when he needs it and without additional drain on the data processing department.

A 'user-friendly' system demands the most advanced DBMS.

Direct end-user interaction creates increased demands on the data base. As a result, Cincom has developed TOTAL 8.0.

You've heard of TOTAL Well, TOTAL 8.0 is even better.

TOTAL 8.0 provides superior performance. It is fully multi-task, multi-thread, offers VSAM support, reduced CPU usage, and many other new facilities.

Where products and services come together.

In addition to T-ASK and TOTAL 8.0, Cincom Systems offers a full range of data base and data communications products that help close the software gap.

We also feature specialised application systems software and Custom Systems support.

These products and services are backed up by a complete network of technical

product support, system engineering and educational facilities.

You don't need to live with the 'Software Gap'. Just call on Cincom to close it.

I'd like to close my "Software Gap". Please send me more information.

Name _____

Company _____

Position _____

Address _____

Telephone _____

Equipment _____

Operating System _____

Cincom Systems Inc., S.A. Dept. CV, 51, rue de la Madeleine, 1000 Brussels, Belgium

Cincom Systems

The Total Information Systems People

TECHNICAL EDUCATION



INTEGRATED COMPUTER SYSTEMS
1979 SUMMER SCHEDULE

COURSE 160 — 4 DAYS

MICROPROCESSOR APPLICATIONS DEVELOPMENT

LONDON 25-28 JUNE



- Analysis of Potential Applications
- Microcomputer Hardware Design
- Hands-On Programming Workshop
- Hands-On Interfacing Workshop
- Development Equipment and Software
- Selecting the Correct Microprocessor

COURSE 240 — 3 DAYS

SMALL COMPUTING SYSTEMS

LONDON 23-25 MAY



- Personal Computer Applications: Science/Engineering/Industrial/Business/Education
- Microcomputer Systems Today
- Microcomputer Systems Software: Types of Languages Operating Systems
- How to select a System: The equipment selection Sequence Software Availability/Performance Maintenance
- Component Compatibility
- Future Trends in HW/SW

For Free Brochures

(01) 283 3974

ICSP — UK Ltd
15 Bevis Marks, London EC3A 7LH
England
Telephone: (01) 283 3974
Telex: 605 1065

What's your line?

TIME SHARING: BUREAUX who do not wish to take financial and technical responsibility for terminals acquired by clients.

COMMERCIAL BUREAUX moving into the remote job entry and telecommunications market.

MANUFACTURERS OF TERMINALS and their agents who wish to avoid the capital commitments that offering their own rental services require.

LARGE COMPANIES with a potential telecommunications network which would involve high capital expenditure on multiple families.

ORGANISATIONS such as educational establishments who commonly have revenue budgets rather than capital budgets.

MINI COMPUTER USERS who wish to limit their capital expenditure.

USERS OF WORD PROCESSING SYSTEMS who may not wish to make a capital commitment in a systems area that is rapidly changing.

If you can identify with any of the above you should be speaking to our specialists who are qualified to advise, study and recommend according to your needs.

MBS Rentals personnel have considerable in-depth experience in the design and implementation of all types of terminal based systems as well as the rental of computer equipment and software. We offer flexible rental facilities on a wide range of equipment from microcomputers to mainframes, including Data Dynamics, Texas Digital, Transdata, Digital, Control Data, and others.

Toksonix, Lear Siegler, Midcom, and others.

For more information contact Mike Brooks, Telephone 01-283 3974

MBS Rentals

Specialists in the renting of terminals
MBS Rentals, 15 Bevis Marks, London EC3A 7LH, England
MBS Rentals is a limited company of MBS Group Ltd.

Appointments

RATES
£10 per line
column centimetres
SERIES DISCOUNT

CHRIS PRIER
Assistant Classified
Manager
01-261-8028

LONDON
Eden Yard 91-201 1987
Mark Warner 01-261 2012
John Warner 01-261 2000
Call Warner 01-261 2000
(10-11/12)

MANCHESTER/GLASGOW
Owen Kelly 061-872 4211
BIRMINGHAM/BRISTOL
Basil McGowan 021-258 4838

COMPUTER WEEKLY — Highest requested circulation at a cost per thousand 25% lower than the nearest competitor



Contract	OS JCL WRITER Some knowledge of French essential. Prestigious position — Don't miss this opportunity. Call us now.	LUXEMBOURG
Contract	ICL 1900 GII & GII OPS. Immediate start. Long and short term contracts. Call now.	LONDON/SUSSEX
Contract	ICL 2903/4 EXEC 1 & 2 Variable contracts available — Oxford, Bucks, Sussex. Salary: Up to £145 per week.	
Contract	EXPERIENCED KEYBOARD OPS. Fantastic opportunity Top Level contract. Excellent Rates — Min. 2 yrs. experience required. Call Sue or June now.	
Contract	BURROUGHS 1715 OP Two month contract. Responsible position. Varied duties. Call June or Sue for details.	MIDDLESEX
Contract	OPPORTUNITIES IN EUROPE We have over 100 operations staff working in Europe today. Call us now for advice and guidance.	

WHY KNIGHT IS RIGHT FOR TOP OPS.

- ★ Knight is part of BOC's Computer Services Division — large, stable and international.
- ★ We respond at once to requests for staff from companies throughout the UK and Europe.
- ★ We're highly experienced — with over 8,000 contracts completed successfully for more than 1,000 top European companies.
- ★ Project work includes JCL writing and documentation for major hardware or software conversions, and we frequently manage complete projects — supply data entry and programming staff as well as operators.

Contract	IBM SYS 3 & 32 OPS £130 per week. Day shift. For further details call us now.	
Contract	YOUR FIRST CONTRACT Top ops rely on Knight for advice and development. As well as the best jobs. Ring Sue or June now.	
Contract	UNIVAC 80/30 — OS OPERATOR BUCKS. Required urgently. Two month contract. Day shift, 9-5.30.	
Contract	HONEYWELL OS 2000 OPS. WANTED NOW Immediate start Essex area. £130 per week. For further information just ring.	
Contract	IBM OS JCL WRITER SURREY £155 per week, immediate start. One year contract.	
Contract	DATA CONTROLLERS With GII experience. Long-term contracts. £125 per week + bonus, split day shift. For further details ring Sue or June.	

Permanent Career Opportunities for Operators

ICL 2904 This friendly firm of commodity brokers based near St. Paul's URGENTLY require a young Operator to work a three-shift system. Career prospects are good for someone with min. 12 months' 2903/4 or George II 1900 exp. and efforts can be generously rewarded with a bonus based on how the Company do. Salary: £3200-£3500 + neg. and 20% S/A. Call Sally or Elaine.	LONDON, EC4
IBM Sys. 3/15 A company in North London are currently seeking three Senior Ops. with min. 1 year IBM Sys. 3/15, preferably with telecomms. exp. They work a 3-shift system and have recently converted from NCR. Benefits incl. min. 4 wks. hols., 12½% hol. bonus, productivity bonus, S/T loan and contrib. p/s. Salary: £3800-£4750 + 20% S/A. Call Elaine or Sally.	LONDON, N19

IBM 370/138 OS/VSI JCL Utilities ESSEX Our client is currently looking for an Operator with two years' OS/VSI exp., prof. with JCL. They have a three-shift system and perks incl. 20 days' hols., 1½% and a luncheon allowance of £80 p.w., p/s at 21 and a sickness benefit scheme. Salary: £2800, incl S/A. Call Sally or Elaine.	
ICL 2960 DME CITY A company based in the City are looking for an Operator with 1-2 yrs. exp., although ICL 1900 exp. will definitely be considered. The candidate chosen for the position will only have to work 1 shift + O/T if necessary and other perks incl. 4 weeks hols., free lunch in co's own restaurant and a new suit every year! Salary: £3800 + 10% bonus. Review in July. Call Elaine or Sally.	

IBM SYSTEM 3 CITY A company situated in the City are currently seeking an Assistant Ops. Mgr. The ideal candidate would be able to take responsibility for the data control and operations depts. and would have 2-3 yrs. IBM Sys. 3 exp., some of which exp. would have been as an Ops. Supervisor or Shift Ldr. RPG-II exp. would be an advantage. Hours 9 a.m.-6 p.m., although some O/T is necessary. Salary: £5500-£6000. Call Sally or Elaine.	
ICL 2904 SURREY A company in Surrey are URGENTLY seeking a Senior Operator to work just 1 shift, 8.30 a.m.-4.30 p.m. + O/T. The ideal candidate would have 2-3 yrs. exp. 1900 or 2900 exp. and also have a knowledge of JCL. There is also a possibility of progressing into programming. Perks incl. 3 wks. hols., 12½% hols. and p/s. Salary: £2700 + O/T. Call Elaine or Sally.	

Knight



This Week's Specials

SALES SALES SALES SALES

SALES AREA — U.K.
QUOTA EARNINGS £11,000 + CAR

Join a major Service Bureau that not only sells Timesharing, services and business packages of all types, but also sells DEC oriented distributed processing systems. Being a leader in its field it can offer excellent prospects plus top perks of free BUPA and 24-hour medical coverage. Vacancies exist in LONDON, MIDLANDS, MANCHESTER and LEEDS. You should be a successful salesman with Business Systems experience and aged between 25 and 35. Basic salary is between £4,500 and £7,500. Please apply now. CW16/1.

LONDON & MANCHESTER
c £8,500 + COMMISSION

SALES AREA — U.K.
QUOTA EARNINGS £16,000 + CAR

Join a company really going places where over half their salesmen earned £16,000 last year. Their products are amongst the most advanced interactive DP systems in the world, having a nine-fold increase in performance across their range of CPUs. They also offer a very efficient range of computer and operating systems. Vacancies exist in CENTRAL AND WEST LONDON, BERKSHIRE, MANCHESTER AND GLASGOW, with basic salaries between £8,500 and £8,000. CW16/3.

CITY, MIDLANDS AND NORTH
PACKAGE: £16,000 + CAR

This successful European multi-computer manufacturer wishes to recruit low first-rate salesmen to sell to the top 1,000 companies where their products have already made them world leaders. Basic salary will be £8,000 with guarantees of around £3,000. There is a genuine chance for promotion and this is a really good deal for the right salesman with previous business systems or small machine experience. CW16/4.

NORTH OF ENGLAND
QUOTE EARNINGS £14,000 + CAR

The type of VDU's and micro based intelligent terminals that this company manufactures is in the middle to upper range, and it is very easy to sell. You will know the equipment and will be proud to work for such a successful firm, so if you are ALSO successful, please apply now. CW16/5.

SALES AREA — S.E. ENGLAND
QUOTA EARNINGS TO £12,000 + CAR

It's easy to sell this company's plotters, as the software supplied is first rate, succinct and based on a powerful 16 bit microprocessor. The company offers its successful applicants excellent training facilities and since its inception over 20 years ago the company can boast a record of achievement. CW16/6.

SELAS AREA — U.K.
QUOTA EARNINGS £13,000 + CAR

Virtually since it started, this company has increased its sales by 40% per annum. Join one of the mini computer world leaders and apply for openings in N.E. London, the CITY, Bristol and Manchester areas. The total package includes a £8,000 basic and a non-recoverable guarantee. Along with everything else, because of their outstanding success, promotional prospects are a reality. CW16/7.

SALES AREA — SURREY & HANTS
BASIC £5,500 + CAR + COMMISSION

This professional company urgently need a Payroll Services Salesman who can work from home. The applicant must have business systems experience and be prepared to work hard. As this company is a subsidiary of a Bank, the perks that go with the job are excellent. CW16/8.

LONDON TERRITORIES
QUOTA EARNINGS £12,000 + CAR

Top grade successful salesmen are required by this famous business systems manufacturer. Although their equipment is disc based, your previous experience could have been ledger card or Bureau selling. With sales branches all over the U.K. their sales have really taken off, and the future looks rosy.

LONDON BASED. £4,400 + BASIC

Have you got what it takes to be a salesman? The previously mentioned company has positions for young people between 23 and 30 who have the right business experience. If you think you fit please ring. Analysts especially welcome. CW16/10.

LIVERPOOL
1st YEAR QUOTA EARNINGS £5,100 + CAR

An International Manufacturer requires a trainee salesman for the Liverpool area. The applicant should have a degree (or equivalent) with 2 years' experience in the retail industry and a preferred age range between 23 and 30 years old. Full training on all aspects of this exciting work will be given. CW16/11.

ARE YOU SUCCESSFUL AT SELLING SMALL BUSINESS SYSTEMS?

If so, consolidate your experience with a move into Mini-Computers.

INCOME PACKAGE £14,000-£17,000

We are recruiting for the Mini Computer Division of an International Manufacturer who in the first year of operation has experienced considerable success and market penetration into the commercial sector. They are offering successful Sales Executives the opportunity to join this expanding division where training, products, software and excellent technical support will ensure your own personal success and give you greater job satisfaction.

Rapid growth is ensuring well-above-average prospects for the future and all of the benefits associated with a major organisation can be

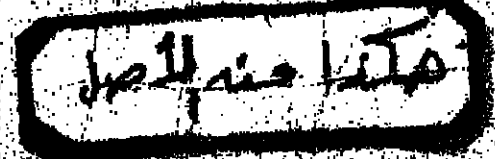
expected. These positions represent excellent opportunities for successful applicants to become part of our client's exciting future plans. If the prospect of joining a young, professional, results orientated sales force, where rewards include a five figure income appeal to you and you are conveniently located for a post in London, Birmingham, Manchester and Leeds, contact for a confidential discussion:

RICHARD CHAMPION ON: 021-236 3781 (24-hr. answering service) OR Hagley 4166 (evenings and weekends).



Specialist Computer Recruitment Ltd

London 01-925 0671/3 Marlowe Place, Wigmore Street, London W1M 6LB
Birmingham 021-236 3781/36/37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-333 0427 Blackfriars House, The Paragon, Manchester M3 2JA



ANALYST/PROGRAMMER - To £8,000

At least three years' commercial DP experience is required using BASIC or RPG II. Applicants must be prepared to travel N. SURREY.

PROJECT LEADERS To £7,500

Applicants should have completed at least one project from design to implementation N. SURREY

DEVELOPMENT PROGRAMMERS To £7,500

One to five years' low level languages experience is essential, preferably gained on a mainframe machine. Data Entry Systems, mini and micro-processor experience useful. Some overseas travel to USA and Europe. HERTS

SYSTEMS ENGINEERS £4,800-£7,500

Applicants must be graduates with at least two years' experience using Assembler, COBOL or ALGOL. You will be involved in Real Time computing systems for telecommunications applications, compilers and simulators. BERKS. + W. HERTS.

BASIC PROGRAMMERS To £7,000

A software house is seeking several programmers with BASIC or BASIC + to work on various commercial and financial applications. Salary £4,000-£7,000 according to experience. C. LONDON.

SENIOR ANALYSTS To £7,000

Three years' analysis experience is sought by company using database techniques to work on commercial and financial applications. N. SURREY.

PROGRAMMERS £4,000-£7,500

To work on DEC PDP-11 based turnkey commercial systems. Varying lengths of experience required from six months upwards to include development of 2/3 programmers, preferably with RSX11 / BASIC + 2 CITY.

SENIOR ANALYSTS To £6,500

Three years' systems experience is required to work on commercial accounting applications. Removal expenses where appropriate. N. SURREY.

COBOL PROGRAMMERS To £6,000

18 months' COBOL experience, preferably gained on ICL 2900/1000 is required by well-known company for their financial applications. Office and PLM + distinct advantage. ANALYST/PROGRAMMER also required. £5,500 CITY.

ANALYST/PROGRAMMERS c. £6,000

COBOL programmers with some experience of analysis are required for a company in BRACKNELL.

RPG PROGRAMMER £5,000 +

Two years' RPG-III, preferably with some knowledge of COBOL, required by manufacturing company. HIGH WYCOMBE

SYSTEMS ANALYSTS c. £5,500

Analysts with varying lengths of experience are required to join a progressive company offering excellent career prospects. Promotion to senior grades is only from within the company with salary prospects for Senior Analysts to £7,500 and Project Leaders to £9,000. WEST OF LONDON

Please telephone for an application form if interested in one of the above vacancies or for details of vacancies in your area.

AMES PERSONNEL

Employment Agency Suite 14, Dryden Chambers, 119, Oxford Street, London W1R 1PA Tel: 01-434 1106

ICL 2970 PROGRAMMER (SYSTEMS SOFTWARE)

£4835-£4862 P.A.

A 3m byte has recently been installed at the Authority's new computer centre in central Bradford. It serves a large and growing communications network, providing services to Head Office and eight Divisions of the Authority, via remote batch, batch, MAC and TP facilities.

This post is part of a team responsible for the development and maintenance of the system software especially the VME/8 operating system.

Whilst at least two years' programming experience is required this need not necessarily be in systems software as consideration will be given to applications of programmers wishing to move into this field.

The 2900 training available is excellent.

Relocation and disturbance allowances are payable in approved cases.

Application forms may be obtained from the Regional Personnel Officer, Yorkshire Water Authority, West Riding House, 67 Albion Street, Leeds LS1 5AA. Tel: Leeds 448001 ext. 288, to whom they should be returned not later than 30th April 1979 quoting ref. RN 072.

Yorkshire Water**UNIVERSITY OF SURREY COMPUTING UNIT SYSTEMS PROGRAMMER**

The University are installing a large multi-access system during the summer and applications are invited for the post of Systems Programmer within the Computing Unit.

The successful candidate will be expected to work on the development of software for the new system. The salary will be on the scale £3883-£6656.

Further particulars can be obtained from the Staff Officer, University of Surrey, Guildford, Surrey GU2 6XH. Telephone GUILDFORD 71261; extension 462. Applications in the form of a curriculum vitae, together with names and addresses of two referees, should reach the Staff Officer by Wednesday, May 9.

RECRUITMENT CONSULTANTS £8,000 +

Targa Computer Services is the specialist Computer division of Targa Recruitment Ltd., handling positions in the computer industry for all levels of Computer personnel.

We are currently looking for people to take over existing clients and to seek out new business in offering our recruitment services.

This will involve wording of an advertisement, advising clients on advertising, presentation, and artwork, and then co-ordinating the response, interviewing applicants and presenting a curriculum vitae of each person. These are forwarded to the client for discussion on which applicants they wish to interview.

We require someone who has a background in systems analysis, programming or operations, has a strong personality, is self motivated and has a flair for being successful.

Company benefits include a good basic salary, an incentive commission scheme and PPP. If you are interested and require further details please contact Jackie Powell on 01-439 1856.

TARGA COMPUTER SERVICES

01-439 1856

MINI-COMPUTER PRODUCT MANAGER

Sperry Univac requires a Product Manager to support its Mini-Computer Marketing Operations.

The applicant will have at least 5 years experience in the DP Industry, typically with a mini-computer marketing organisation, in a sales or sales support analyst function. This role offers the opportunity to really develop a career in marketing by getting involved with senior management in the development of marketing policy and through the support of the sales force.

This is an important and challenging position and the remuneration reflects its requirements and responsibilities.

For further information telephone Peter Lines on 01-965 0511, or write to Heather Green for an application form: Sperry Univac UK Headquarters, Sperry Univac Centre, London NW10 8LS.



SPERRY UNIVAC
COMPUTER SYSTEMS

CONTRACT OR PERMANENT

DEC AIMS
BASIC + RSTS/E
MACRO 11 - RSX11M
HP3000 COBOL
IMAGE

IMMEDIATE STARTS
TO £350/WEEK OR £9,500/P.A.

CONTACT: JIM FORT
01-353 7141

Ref. CW349/5

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

Minicomputer Specialist

If you are a Minicomputer Specialist you'd probably enjoy the challenge of:-

- * Advising project teams on the pros and cons of decentralisation.
- * Identifying and evaluating alternative hardware/software options.
- * Supporting/advising project teams during system development and implementation.
- * Working with a variety of different types of equipment.
- * Keeping up with developments in minicomputer technology.

We are looking for D.P. Consultants with an extensive broad based technical data processing background which includes experience of both minicomputers and IBM operating system software.

Salary is around £7,000, but could be more depending on experience and an excellent benefits package includes four weeks holiday, rising to five, and relocation expenses. There will be opportunities for travel throughout Europe.

So, for a job with more challenge and real prospects, contact Jack Kennedy at Rank Xerox Limited, Phoenix House, High Street, Bushey, Herts. Tel: 01-950 4030.

RANK XEROX**Systems & Programming Consultants**

Do you desire . . . ?

- ☐ to be based in a country environment
- ☐ to work on a variety of assignments
- ☐ to join our in-house mini applications team
- ☐ a realistic salary and bonus
- ☐ the prospect of a company car
- ☐ member of BUPA

We can offer you all of these. We are a rapidly expanding computer consultancy and software house based in rural Essex. We currently require Analyst/Programmers or Programmers with at least 3 years' D.P. experience in a commercial environment.

If you like the sound of what we have to offer, find out more from Karen Burden on 024541-4255. Or write to Anglian DP Services Ltd., Stratford House, Maldon Road, Danbury, Chelmsford CM3 4QW.

ANGLIAN D.P. SERVICES LTD.**SENIOR OPERATORS AND OPERATORS**

Salary Range £4,020-£5,110 (under review)

Have you 9 to 18 months G3 or OS/VS experience?

Use it to your advantage at London Transport's Data Processing Department near Oxford Circus.

We have vacancies for Senior Computer Operators and Computer Operators. Salary range £4,020-£4,440 for Operators and £4,480-£5,110 for Senior Operators, including Shift Allowance. (All salaries are under review).

The installation currently comprises 2 ICL 1904S, 2 ICL 2904, IBM 370/148 and IBM Series 1 computers handling Batch, Transaction, and Interactive Processing and On-Line Enquiry Systems. Installation

of a new 2960 is imminent. We also have vacancies for a Data Control Clerk and a Media Librarian. Salary range £3,260-£3,450 (also under review).

Career development and promotional prospects are excellent. You will enjoy FREE TRAVEL ON LONDON TRANSPORT SERVICES AT ALL TIMES, along with other valuable travel concessions.

Telephone our Senior Operations Controller on 01-837 9144, or write for an application form to Staff

Appointments and Development Officer, London Transport, 55 Broadway, London SW1H 0BB, quoting reference 984/6.

LONDON TRANSPORT

MYRIAD MANAGEMENT SERVICES MANAGER

LONDON

c £12,000 + Car

Our Client, Wallis Fashion Group, is an independent public company and are leaders in their segment of the fashion market who design and manufacture fashion merchandise exclusively for their own chain of retail outlets. Vertical integration coupled with a strong investment in DP has clearly paid dividends. Sales turnover has increased sixfold in the last six years and there are equally ambitious growth plans for the future. They are now seeking to appoint a Management Services Manager.

The Management Services Manager will primarily be required to establish and recommend short medium and long term strategic plans for the provision of all information and systems services within the company. The range of responsibility will encompass established O & M, Operational Research, Business Analysis and Computer departments. The successful candidate will report to the Group Financial Director and be responsible for evaluating and co-ordinating the development and implementation of new systems within agreed budgets.

The company's head office is located in North London from which its retail activities throughout the U.K. and Europe are controlled. Involved in its own product design and manufacture, the company has an outstanding record of successful expansion in recent years and can offer a challenging and progressive future. In addition to first-class conditions of employment the position is enhanced by the provision of a company car, P.P.P., Pension Scheme, staff discount and a commencing salary in the region of £12,000 per annum.

Ref: AP1/1904

MYRIAD APPOINTMENTS LIMITED
30 Fleet Street London EC4Y 1AA
01-353 0981

**Microprocessor Software Design**

Tayside, Scotland

NCR is the number two computer systems company world-wide.

A major part of its success is derived from microprocessor based special- and general-purpose terminals.

At Dundee we have developed a highly successful self-service banking terminal.

We now need additional Microprocessor Software Designers (male or female) of one to five years' experience to design new self-service terminals and to help determine the architecture of the next generation of terminals.

The people we require will be experienced in

- Assembler programming
- Mini/micro operating systems
- Communication Software

The rewards at NCR include a negotiable salary, 35 hour week (paid overtime at premium rates), pension and life assurance schemes, generous relocation assistance and the possibility of U.S. travel.

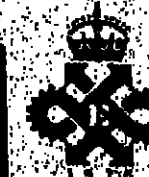
At our unique location on the coast, close to all the premier Scottish golf courses, with ski slopes on the horizon, we offer a quality of life second to none.

In return, we expect professionalism, dedication and sheer hard work.

Interested? Then please write, giving brief career and personal details to:

Ian Hume,
NCR Ltd. Engineering & Manufacturing
Kingsway West,
Dundee DD2 3JX

NCR



Johnnie's

156

Ring David Abbey for further details on 01-261 8016

At last. A contract agency that won't expire with your contract.

If you like freedom and variety, contract work has many advantages.

But freedom and variety aren't worth much if the company that placed you vanishes into thin air on pay day.

Now there's a computer contract agency with a name you've actually heard of. John Goldsmith. And we're here to stay.

We're backed by the Provident Financial Group – and a proven 10-year track record of placing people on assignments. We understand computer people, because we are computer people ourselves.

The man in charge of our new Contract Staff Division is David Garnsey. (Another name which should ring a few bells). What he doesn't know about contract work isn't worth knowing.

He also believes in getting to know his staff, and keeping in contact. Whether you're working in Putney or Paris, he makes regular visits to make sure that everything is working out as it should.

You get all the benefits and security of a good permanent job plus permanent health insurance, advice on taxation and company formation, travel insurance, subsidised BUPA and – of course – prompt payment.

Maybe you are on contract, or between contracts, now. Or perhaps you've always wanted to try contract work, but have somehow never got round to it.

Now is the time to act. Call David Garnsey on 01-828 4739 or 01-828 5356.

And we guarantee that when your contract expires, we'll still be alive and well.

John Goldsmith Computer Professionals on Contract



Computing
Services
Association

John Goldsmith (Computer Recruitment) Ltd.
Contract Staff Division, Asphale House, Palace Street, London S.W.1.
Telephone: 01-828 5356 - 24 hour answering service. Telex: 910779.
A company of the Provident Financial Group.

Recruitment Consultants

PROJECT LEADERS

London based

£6000-£9000p.a.

If you find your present environment restrictive, you can realise your full potential with one of Europe's most successful consultancies, working in the fields of computing and communications. In return for hard work and initiative, they can offer you variety, challenge and the opportunity to work on some of today's most advanced computer systems.

Currently they require project leaders and system designers for a wide range of projects. Candidates will need the ability to work on their own initiative and to communicate effectively with others. At least three years' post-University computing experience in one or more of the following areas is desirable:

- Image Processing and Remote Sensing ● Data Communications ● Military Command and Control Systems
- Real-Time Systems ● Databases/Information Retrieval

For further details concerning these appointments please contact Eddie Howard.

COMPUTER PERSONNEL CONSULTANTS

Edmund Howard & Partners

5 Brighton Road Surbiton Surrey England Tel-01-399 9183

SALESMEN

GUARANTEE £10K

QUOTA = £17K

**TAKE UP THE CHALLENGE
SUPERB OPPORTUNITY**

Become a key member of one of the UK's most successful systems houses (£3,000,000 sales in first full year), utilising the highly successful DEC range of mini computers.



BUNZL DATA SYSTEMS LTD

A subsidiary of Bunzl Pulp & Paper Limited.

They offer the following benefits:

- ★ INITIAL GUARANTEE c. £10K
- ★ TARGET EARNINGS — £17K
- ★ CHOICE OF COMPANY CAR
- ★ EARLY MANAGEMENT OPPORTUNITIES

- ★ EXCELLENT SOFTWARE PRODUCTS
- ★ LARGE PROMOTIONAL BUDGET
- ★ GROWING CUSTOMER BASE
- ★ BIG COMPANY BACKING

DON'T HESITATE PHONE 01-486 5644 — NOW FOR EARLY INTERVIEW — QUOTING REF. CDW.



INSIGHT MARKETING & PERSONNEL
CONSULTANTS LTD.
72-75 MARYLEBONE HIGH STREET
LONDON W1M 4AJ PHONE 01-486 5644



John Goldsmith

MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

SYSTEMS ANALYST

(Database Applications)

TO £7250

CENTRAL LONDON

Variety, challenge, responsibility and real career potential; this post is within a fast expanding bureau marketing a comprehensive range of time sharing applications utilising powerful database and transaction processing software. The successful applicant would undergo a period of training in the first instance followed by a variety of small projects involving both in-house and on-site working, designing and implementing client systems.

Applicants will have a minimum of five years' commercial D.P. experience involving at least one project, carried from investigation through to implementation, together with an ability to function well in a customer orientated situation. Rapid promotion is a very real prospect for the successful applicant together with increased responsibility and rewards. Ref. S1/1904

24-hr. answering service
Please telephone for a confidential
discussion or write to:
30 Fleet Street London EC4Y 1AA
01-353 0981

Get in First. Stay on Top.

Analysts and
Programmers
for rapidly expanding
business systems house

Based in Twickenham, London.



DATA COMMUNICATIONS
CORPORATION
Thames House, 5 Church Street,
Twickenham, Middlesex TW1 3NJ.
Tel: 01-892 3685 Telex: 8613327.

We're DCC — one of the country's fastest growing business systems houses. We're part of an international organisation and from a standing start in the UK just over a year ago we've opened a whole range of prestige accounts in commerce, government and the utilities. If you join us now you'll be 'in on-the-ground-floor' with a company that respects people who get results... so your career prospects will be excellent.

Right now we need more Analysts and Programmers to help us sell and install a range of proven financial packages which use the highly successful Data General Computer range. They're recognised as the best in the business and cover all aspects of accounting systems, plus data collection, communications and distributed processing systems, property management and so on.

Analysts should have around 5 years experience in system design and be in the age range of 30 to 35. COBOL experience essential. We have a policy of promotion from within so you'll have every opportunity to progress to project leader and on to management in application/technical support.

The salary package, which includes contract bonus and car, will take you into the £10,000 a year bracket.

Programmers must have 3 years experience in COBOL and will receive a salary package of up to £9,000.

Just telephone Mike Parritt on 01-892 3685 reversing the charges if more convenient.

SYSTEMS ANALYST up to £7500 p.a.

A systems analyst is required by Barclays Unicorn Group Limited, a leading Unit Trust and Life Assurance Company, at their East London Head Office.

The position requires a person with the ability to motivate others. The analyst will be responsible for the development of commercial systems to support the expansion of the Life Assurance side of the Group's operations. He/She will be seeking to enlarge his/her experience in a financial environment and to be in a position where practical ideas can be put to good use.

We use an ICL 1904A under George III while a changeover to a 2900 system is planned. A Data General Eclipse mini with 1/2 megabyte main memory and 16 VDU's is being installed as a front-end to the main frame systems.

The successful applicant will need sound systems experience and will probably have gained this in a commercial background. Knowledge of ICL 1900 Disc and Cobol and/or Life Assurance systems will be advantageous.

The salary range is £6,000-£7,500 p.a., plus productivity bonus. As a Barclays Bank employee, the conditions of employment and fringe benefits are substantial and include a non-contributory pension scheme, staff restaurant and luncheon vouchers, 5 weeks' holiday, a profit-sharing scheme and also a special house-purchase scheme.

Applications should be made in writing to:-

Staff Manager,
Barclays Bank Trust Company,
Juxon House, 94 St. Paul's Churchyard, London EC4M 8EH.

BARCLAYS

Reed Executive

The Country's most successful Recruitment Service

Mini- Computers

Birmingham to £6,500

The world of the mini is becoming increasingly sophisticated and requires ever more specialisation which means that those having the expertise are in increasing demand. One of the most interesting systems currently being installed is planned to incorporate a unique order entry system combined with production scheduling and shop floor data-collection. The company concerned is part of an international group, the hardware Hewlett-Packard, the back-up facilities impressive and career prospects and conditions excellent. If this interests you and you have analyst or programmer experience on minis or possibly a good mainframe background and a desire to learn new techniques — then please contact us. A full relocation package is available if necessary.

Telephone: 021-643 7226 (24 hr. service) quoting Ref: 1108/CW. Reed Executive Selection Limited, 6th Floor, The Rotunda, Birmingham B2 4PB.

The above vacancy is open to both male and female candidates
London Birmingham Manchester Leeds

SOFTWARE ENGINEER

UP TO £7,500 P.A.

We are leaders in the field of advanced materials test equipment, and need an experienced engineer to augment our software sales department. The team is small, so you will be given immediate involvement in the design of programmes for an enormous variety of applications. These include: Earthquake simulation, flight simulation, fatigue studies and control of dynamic test machines.

Mini computer experience is essential, preferably involving the use of Fortran and Assembler on PDP11, GEC 4000 or Hewlett Packard 1000 Series.

Salary is negotiable up to £7,500 p.a. according to experience with relocation expenses where appropriate.

Please apply in writing, or telephone:

The Personnel Manager

Barclays Bank

Barclays Bank

Barclays Bank

Barclays Bank

Barclays Bank

Barclays Bank

"During this financial year we will increase our turnover by 30% (in real terms) and the number of staff employed will rise by some 150 people. To fill these positions it is essential that we continue our intensive staff advertising, at the same time maintaining our policy of selecting only the best people."

Bryan Mills, CMG Group Chairman

If you

* are earning between **£4,000 - £12,000 p.a.**

* want to develop your career

* want interesting and challenging work

* have a minimum of 2 years commercial systems and programming experience

then WE WANT YOU to make our planned expansion and development a REALITY

With CMG you will have

* career security

* exceptional promotion prospects

* top level salaries

* a wide variety of work from programming to consultancy using minis and mainframes to solve a wide range of commercial business problems

Salaries range from

£5,000 to £12,000

because we have a wide range of requirements.

Additional benefits include

* Free Life Assurance and Pension Plan

* BUPA Family Cover

* 21-26 days annual holiday

* Profit Sharing Scheme

* Removal Expenses

ACT NOW, either telephone your local CMG office or complete the attached coupon and post it to us to receive an application form.

Please send me

An Application Form ☐

A copy of your booklet ☐

CMG 1978/79

Name

Address

Telephone

Please quote ref: UK/10



"It can only
do you good!"

CMG

London · Frankfurt · Brussels · Glasgow
Amsterdam · Rotterdam · Manchester

Computing
Services
Association
Member of the Computing Services Association

Shelagh Tills
CMG Computer Management
Group (Middlesex) Ltd
Westway House
320 Ruislip Road East
Greenford
Middlesex UB6 9BW
Tel: 01-678 4563

Janet Stirling
CMG (Scotland) Ltd
Highland House
58 Waterloo Street
Glasgow G2 7DA
Tel: 041-221 5193/6

Colin Smith
CMG (City of London) Ltd
Eastgate
78 Leamington Street
London E1 8EY
Tel: 01-481 8881

Wandy Maynard
CMG (Southern) Ltd
Sunley House
Bedford Park
Croydon CR0 2AP
Tel: 01-686 8251

Janet Gothard
CMG (West End) Ltd
Telford House
14 Tothill Street
London SW1H 9NE
Tel: 01-222 3521

PL1 PROGRAMMERS

West End to £5500 + Mortgage
A leading commercial organisation with an expanding 370/135 installation in the West End is seeking a number of PL1 programmers to work on a variety of new and existing projects.
The positions are ideal for enterprising young programmers with at least twelve months experience on IBM Hardware. A knowledge of OS/VS1, although not essential, would be a distinct advantage. The company offers a first class salary, and fringe benefits include Flextime, Season Ticket Loans, and a Subsidised Mortgage.
Reference PG16/1

COBOL ANALYST/PROGRAMMERS

C. London to £6500
One of the country's largest retail organisations is seeking several people with a COBOL background, but with an interest in other languages.
They use a 370/145 & have development projects for a 3031 in COBOL, ASSEMBLER & DL1, & you will need around 18 MONTHS or more in any of these languages.
Any Analysis or D/B experience would be helpful; however, training will be provided, making this an ideal opportunity to diversify your career.
01.439.7871 **Reference PG 16/2**

BASIC + PROGRAMMERS

City to £6500 + Mortgage
An International Banking Group require all levels of BASIC+ Programmers to be involved in their new MINI Projects. A minimum of 6 months experience in BASIC+ is required or, alternatively, good experience in other languages would be considered for people who wish to enter the MINI field.
The Company have several DEC PDP 11 Machines coupled with large IBM Mainframes.
Other attractions include Flex-time, Bonuses, Subsidised Mortgages, and loans after 6 months.
Reference HK 16/3

ANALYST/PROGRAMMERS

West End to £7000
An International Pharmaceutical company based in the West End with a range of MINI's and Mainframes in key locations throughout the U.K. are seeking Analysts/Programmers with a minimum of 1 years Analysis. A knowledge of CORAL 66 would be ideal but retraining will be provided to applicants with good programming and analysis experience.
They offer competitive salary plus all the fringe benefits you would expect from a company of their size and standing.
01.439.7871 **Reference HK 16/4**

ALL OTHER MAINFRAMES

HONEYWELL GCOS £4800
Minimum of one years experience for senior operator. Prospects include opportunity to move into programming.
HONEYWELL GCOS £4400
One years experience on any mainframe needed for out of town GCOS site. No night shifts are worked and excellent relocation package.
HONEYWELL OS2000 £5000
Central London company is looking for an OS2000 operator with a year to 18 months experience. There are no night shifts and ample opportunity for overtime.
UNIVAC OS3 £4500
Applicants should have 9 months experience of 80/30 range for two shift job (no nights) in West London. Good company discounts apply.
DEC PDP 11/45 £4800
Applicants with a minimum of two years DEC experience and aged 24 or over, are needed for assistant supervisor for a Merchant Bank. Only two shifts and standard bank perks apply.
BURROUGHS B1800/MCP £3760
Essex site is looking for a Burroughs operator with 6 months experience for days only position. Perks include discounts on interesting company products and programming involvement.
01.439.7871 **Reference SO 16/5**

SYSTEMS ANALYST

West London to £7500 + Mortgage
A well known financial organisation operating an ICL 1900/2900 installation is seeking a Systems Analyst who is looking to expand on his present experience. The minimum experience required is 3 years with at least 1 project seen through from feasibility to implementation. This would preferably have been gained in a financial environment.
The Company benefits offered are considerable including a 5% MORTGAGE, 5% CAR LOANS, L.V.'s, a subsidised restaurant, and a very good sports and social club.
Reference BP 16/6

SYSTEMS ANALYSTS

City to £7000
A major finance company based in the City wishes to recruit additional staff to work on the development of new projects for their expanding IBM 370 system. The individuals they are seeking will have at least two years Analysis and must have implemented one major system. Any knowledge of CICS or PL1 would be a distinct advantage.
In addition to a highly competitive starting salary the company offers an attractive benefits package and excellent working conditions.
01.439.7871 **Reference PG 16/7**

CONTRACTS

FOR

PROGRAMMERS & ANALYSTS

FLUENCY IN

**FRENCH GERMAN
DUTCH or FLEMISH**

WITH EXPERIENCE IN

DATABASE or TELECOMMUNICATIONS

COULD LEAD YOU TO ONE
OF OUR MANY LUCRATIVE
ASSIGNMENTS IN EUROPE.

CALL

BOB EDWARDS**TELEX 25851 01.439.1856****SENIOR COBOL PROGRAMMERS**

West London to £7000 + Benefits
A major retail group with an expanding installation is seeking several Senior COBOL Programmers with a minimum of 3 years ICL 1900/2900 experience. Any The Company operates a retail distribution system with considerable real time involvement, thus offering the opportunity for people with solid experience to gain valuable Real-time exposure.
They offer very good salaries with considerable benefits including staff discounts, non contributory pension and a subsidised staff restaurant.
Reference BP 16/8

JUNIOR COBOL PROGRAMMERS

City to £5000 + Mortgage
A major financial organisation operating a twin ICL 1900 series installation is seeking several Programmers with a minimum of just 12 MONTHS' COBOL.
The Company is involved in a number of new financial systems so any experience here, although not essential, would be more than welcome.
In return they offer very good salaries, 60p per day L.V.'s, 4 WEEKS HOLIDAY, and a 32½ HOUR WEEK, and if that is not enough then consider also their 3% MORTGAGE scheme!
01.439.7871 **Reference BP 16/9**

RPG II PROGRAMMERS

City to £5500 + Mortgage
A large International bank urgently requires two capable RPG II Programmers to work on a whole range of financial applications on their IBM SYSTEM 34. All you will need is around 12 MONTHS' RPG II experience, on any machine, and not necessarily within the financial field.
The appointments will offer good career opportunities and future exposure to Systems Analysis, as well as a Non-Contributory pension, Season Ticket loans and a 3% Mortgage.
Reference PG 16/10

MINI ASSEMBLER PROGRAMMERS

South West London to £7000
A small but rapidly expanding Software House based in London are currently seeking Assembler Programmers with a commercial background to work in a Customer Support role.
If you have around 3 years' Assembler experience on either Mini's or Mainframes and would welcome involvement on a client contact basis then this opening should be of interest.
The Company offers good salary plus paid overtime and the chance to move into Analysis.
01.439.7871 **Reference HK 16/11**

IBM & ICL MAINFRAMES

IBM 370 OS £5000
Financial organisation requires Senior and Junior operators. 2 yrs experience including good JCL knowledge for the Senior post. Perks include mortgage allowance.
IBM 370 OS £4800
Operator with around 1 years experience required by large City company. Excellent career prospects and an unusual shift system giving plenty of free time.
IBM 370 DOS £4800
East London Installation requires Operators with 6 months + DOS exp. Prospects of moving to programming in the future.
IBM 370 DOS £4500
Vacancies exist in all areas for Operators with 6 mths experience in a variety of installations offering a wide range of benefits.
ICL 1900 £4300
City based installation requires an Operator with around 1 yrs GII experience. 2 shifts only plus an Annual Bonus.
ICL 1900 £5400
Shift Leader and Senior Ops required by large 1900 site. GII experience essential, knowledge of Macros useful.
ICE 2900 £4400
Senior Op/Shift Leader for 2 shift working 2904 installation. Discount on some company products.
01.439.7871 **Reference MH 16/12**

DATA CONTROLLERS

We have many vacancies throughout London and the Home Counties for both Junior and Senior Data Controllers.
Salaries from £3,000-£8,000

Datascene International Ltd. Telex: 25851
Sceptre House
169-173 Regent Street
London W1B 7FB **01-439 1856**

Situated in N.W. Kent, and with a significant lead in the expanding Telecommunications field; our client is currently at the forefront in developing micro-processor based private telephone exchanges which will broach new ground in many areas.

Mini/Micro Programmers £5000 to £8000
There is an immediate requirement for at least 2 Programmers to become involved in the development of the live Operational Software for this Real-Time Project.

You should have a minimum of 12 months' experience on either mini's or micro's using either HIGH or ASSEMBLER level languages, ideally gained within a Real-time environment.
Although these are Operating Systems for micro-processors, much of the compiling, linking, testing and simulation will be done on IBM mainframes, thus offering a great deal of variety and interest as well as valuable exposure to a wide range of DP experience.

To find out more about these challenging and rewarding positions, call DATASCENE, and ask for PHIL GASCOIGNE.

**FORTRAN
PROGRAMMER
ANALYST****Looking for a chance to get into
commercial systems development?**

It's not often that an opportunity arises for you to apply your FORTRAN experience in a commercial environment. But just such an occasion has arisen.

A multi-million company in the film processing business has recently installed a PRIME 400 computer with a large number of DDE screens to service their laboratories in the UK and on the Continent.

With initial mail order and sales ledger systems now complete, the company is at present setting up its own Systems and Programming Department and now requires an enthusiastic, but essentially mature minded, Programmer Analyst to head up the new team. A man or woman with at least two years' FORTRAN programming experience.

The beauty of this job is that it will be almost entirely development work, both on existing systems and on new nominal and bought ledger commercial systems, so it should provide you with plenty of interest.

In a pleasant Thames-side Berkshire location, the company is offering a salary of up to £6500 with free BUPA, subsidised staff restaurant, Christmas bonus and annual negotiable salary review. There are other perks too and they tell us that they have a really friendly team, so don't miss this opportunity.
Phone or write to Andy Mogg for an application form.

up to £6500-Berkshire

Knight Computer Services Limited,
14 Old Park Lane, London W1Y 4NL
Staff Services Division of BOC Datascene Group and
a member of Computing Services Association

01-491 4706**PROGRAMMERS**

A lucrative and secure future in Western Germany

We are: The leading bakery product manufacturer and producer in Germany and are based in Pfungstadt (between Frankfurt and Heidelberg).

We have: An ICL 1903 A, 96 K, 4 EOS60, 4 MT, 2 printers, document reader and plan to change to new generation equipment by the start of 1981.

We need: Programmer(s) who can handle ICL equipment, GEORGE TPS and COBOL and who is willing to learn German.

We offer: Salary of around £10,000 p.a. with excellent prospects as well as other fringe benefits. Relocation expenses are, of course, being taken care of by the company.

If you are interested please contact:

Wilhelm Weber GmbH Backwaren
Ostendstr 8
6102 Pfungstadt
West Germany
Phone number: 01049-6167-3061

Sending a CV and giving dates and/or times preferred for interview, which will take place in May 1979, in London.

**COMPUTER
SCIENCE RESEARCH**

Applications are invited from potential research students (full-time and part-time) with a good honours degree in Computer Science or related subject. Research areas are Distributed Computing (Data Flow - including programming methodology, language definition and implementation), computer architecture and Processor design and development.
Write or phone (01-439-7141) for an interview to Dr. Peter Daman, Computer Science Department, Westfield College, Tottenham, London, NW9 7ET.

**DATA PROCESSING
CONTROLLER**
Liverpool City Centre

THE COMPANY: Established Liverpool Shipping Agents who at present have centralised accounting system based on VRC 400s will shortly be installing an NCR 5250 Computer.

THE POSITION: Data Processing Controller responsible to Accountant for overseeing implementation of established packages on an NCR 1-5250 Computer, and day-to-day control of these systems. Configuration includes 4 VDUs, 10 Ms Disc Storage and 125 LPM Printer using multiprogramming and on-line terminals. Appointment will be for about 2 years with remuneration negotiable at level appropriate to the position reflecting also duration of appointment.

THE CANDIDATE: The successful applicant will have had proven experience in implementing and controlling systems on a similar machine, and will be fully conversant with financial accounting principles. The position is ideally suited to an experienced Analyst or Analyst/Programmer with Computer Management experience.

Applications will be sent to the Controller, Liverpool Shipping Agents, 100-102, The Strand, Liverpool L2 2JF. Tel: 051-255 9571. For further details contact Mr. J. D. Jones at 051-255 9571. Mr. Jones is a member of the Liverpool City Centre Data Processing Committee.

£4000 - £7000 +
North+Midlands
Analysts & Programmers
081-638-4184
Sampson Staff

We have moved to VICTORIA

Central Computing Consultants

8 Lower Grosvenor Place, London SW1 Telex 27950 Ref.1035

Telephone
01-834 7105

AMSTERDAM

INTERACTIVE GRAPHICS/MECHANICAL ENGINEERING DESIGN AND MANUFACTURING

The European Marketing Center of the leading International Company in COMPUTER GRAPHICS, have a requirement for an Applications Consultant and Graphics Software Specialist.

Candidates will be required (given the necessary training) to provide consultancy services on state of the art Graphics Systems and Applications, to a wide range of industries. In addition the successful candidates will be responsible for evaluation and reporting on application systems and software.

Candidates prepared to travel, will be offered high salaries plus a very lucrative profit sharing scheme and exciting long term career opportunities.
CW16/1

IRELAND

Service Engineers to £7,000 basic

The Engineer Division of one of Ireland's most progressive companies is seeking additional personnel to service its rapidly expanding engineer base.

Engineers must have a minimum of 18 months' trouble-shooting computer systems (central processing disc and tape units and various electro mechanical devices) down to component level, are required for the company's Dublin office, although a certain amount of travel around the country will be necessary.

Basic salary will depend on experience, but will be very competitive and a complete package includes either a company car or allowance, full expenses and overtime payments. In addition the company offers an attractive relocation scheme.

For further details telephone Jim Corrigan on Dublin (0001) 789 577 or write to CCC at Cranmore, 85 Glen Road, Belfast BT11 8BD.

CW 16/3

WORK LOCALLY IN EALING & EARN £6,500 p.a.

The opportunity has arisen to join the expansion program of our clients installation located in Ealing. Two ANALYST/PROGRAMMERS with knowledge of ICL 1900 or 2803/4 hardware and software, are required to assist this company in its computerisation growth.

The immediate future involves major enhancements to both hardware and systems, including the installation of intelligent terminals at regional locations.

RPG II programming experience would be welcomed, but the successful candidates will be given full training in this skill where required.

In a nutshell, candidates living in or wishing to move to the Ealing area will benefit from job satisfaction and career growth with this expanding company, as well as a starting salary of up to £6500.

CW 16/5

CUSTOMER SUPPORT CONSULTANTS

£6,000 - £7,000 + Car

Our clients are Worldwide market leaders in interactive computing services who have been established for over ten years can boast an annual growth rate of over 30% during the last nine years. They have vacancies in many of their offices throughout the UK for CUSTOMER SUPPORT CONSULTANTS to help maintain this success over the next ten years.

The successful candidates will be required to provide Technical Support to existing clients, and Pre-Sales Technical Support for Salesmen, covering a wide range of applications areas and Business functions. We would like to hear from people in the 25-35 age bracket preferably with a degree or equivalent who have had some DP experience and a knowledge of one High Level language preferably FORTRAN but this is not essential.

This position will appeal to those people who feel that their present position does not give them the challenge or satisfaction they deserve.

A lot of time and money will be invested in training you for this position and in developing your career thereafter. Coupled with a policy of promotion from within, this appointment offers excellent career opportunities for those who are successful.

CW 16/7

SENIOR SYSTEMS ANALYST

WILTSHIRE

£7,000 + BENEFITS
REVIEW IN JUNE

Our clients who are a major commercial organisation are expanding and diversifying their large and secure market base, and therefore require an additional SENIOR SYSTEMS ANALYST to lead projects within a young professional management team.

The successful candidate will be working with the latest Hardware (ICL) and will already have experience of Systems Analysis preferably in a Commercial environment such as Financial, Stock Control and Order Processing systems.

This position will appeal to people who wish to take the wider responsibilities towards Business Analysis.

CW 16/2

PROGRAMMERS & ANALYSTS

Middlesex/Hertfordshire

£6,600 p.a.

A Data Processing Department is the backbone of any successful company, especially if the company is a Multi-Million Pound Manufacturing Organisation with a turnover in excess of £1,000 million.

That is why we would like to hear from PROGRAMMERS and ANALYSTS who can become members of the team for the development of new Commercial applications.

The installation presently runs dual 1900's under G2+, but owing to the continual demand from users, one of the 1900's is shortly to be upgraded, probably by a 2960.

Programmers will need at least 18 months' experience of Cobol, Knowledge of G2+ and Datavide would be an added advantage. Analysts will need a Programming background with 18 months' Analysis experience, although Programmers who wish to advance their career into Analysis will also be considered.

The Company can offer an excellent career path through to Management, plus the usual benefits of a large company which includes Staff Shop, Sub canteen, Sports Club, Life Assurance and 4 weeks' holiday per year.

CW 16/4

SENIOR ANALYST PROGRAMMER

Cork

£7,500 p.a.
+ relocation exps.

A well-established Irish company wishes to appoint a Computer Professional to take charge of their new ICL installation.

The job requires someone to monitor current applications, i.e., ON-LINE ORDER ENTRY, STOCK CONTROL, etc., develop new and future systems and day-to-day running of the department.

- ★ 3 years in depth COBOL programming
- ★ 2 years' ON-LINE SYSTEMS DESIGN
- ★ Analysts and Implementation experience
- ★ Ability to manage a growing department

A rewarding career awaits the successful candidate with great future scope. An attractive salary is coupled with the type of excellent fringe benefits only associated with a major manufacturing company. Relocation expenses will be paid where appropriate.

For further details telephone Gerald Delamere on Dublin (0001) 789 577 or write to CCC at Cranmore, 85 Glen Road, Belfast BT11 8BD.

CW 16/8

SPRECHEN-SIE DEUTSCH

Mini/Software

up to £17,500

One of the most prestigious software companies in Europe is currently expanding their German operations in Central Germany. Their business is based on a wide range of projects currently being developed on both Minis and Business Machines.

Due to this expansion they want to meet several Computer Professionals who are competent in German, for project development. Technical background can be widespread but must include software development on minis, e.g. Siemens 330, DEC PDP11, DG Nova, etc.

While our client can accommodate people seeking employment for a year or two, they definitely want candidates with medium to long-term ideas about settling in Europe and building a future with the Company.

CW 16/8

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

THE BIG QUESTION

- ? Do you have expertise in MACRO, CORAL, FORTRAN, or ASSEMBLER
- ? Have you any experience of Real Time Systems
- ? Are you or could you be a Systems Designer, or Systems Engineer, or Programmer on minis and micros
- ? Have you a computing or electronic degree
- ? Are you worth between £4K and £7½K
- ? Do you want to live in a rural area of England

If you score more YES than NO
contact Derek Pearson to evaluate your future

MANAGEMENT &
EXECUTIVE SELECTION

ANALYSTS & PROGRAMMERS

The FOCUS is on ESSEX — NOW!!

We are currently working on behalf of a selected number of prime clients in the Essex area, who are looking for experienced Analysts and Programmers.

SALARIES — above average

- ★ Senior Systems Analyst to £8½K
- ★ Systems Analyst c.£7K
- ★ Programmers, Cobol, RPGII or PLI to £7K

CAREER PROSPECTS — excellent

For an immediate interview before it's too late —
contact me today — Val Bowen

Suite 201/6, Albany House, 324 Regent Street, London W1R 5AA. 01-637 9611

SOFTWARE PROJECT LEADER-HONG KONG

£28,400 inc.

+ £10,500 Contract Bonus 1½ yr. contract

Our Client requires a Project Leader who will work with a dedicated mini-computer system using DEC PDP11 series. Some knowledge of this equipment is essential, an in-depth knowledge a definite advantage.

Applicants should have a minimum of eight years experience in Software design and writing and be able to provide a proven record of managing the successful implementation of complex systems.

Benefits include:

- 18 months accompanied contract
- 2 months paid leave on completion
- £10,500 contract bonus
- Return airfare including family
- Settling in costs.

Applications, including a full C.V. and quoting reference 141 will be sent direct to our client. Please send a covering letter addressed to the Security Manager listing any companies to whom your application should not be passed.

JWT Recruitment Ltd

Executive Recruitment & Selection
40 Berkeley Square London W1X 8AD 01-229 8498

CIT

SCHOOL OF
ELECTRONIC SYSTEM
DESIGN
(Approved MAPCON consultants)

Microprocessors and their on-line application

Short Course

May 21st-25th intensive

The course which is OSI (MAP) approved covers the 8080/85/88 range of microprocessors and a number of on-line algorithms design techniques including discrete time image, digital filters, Kalman filter, fast Fourier transform, laboratory work, with hands-on microprocessor experience, is emphasised, and comprehensive notes are provided. Write for a brochure and selection form to: The Short Course Office, Cranfield Institute of Technology, Bedford, MK43 0AL, or ring John Batty 0524 720111 Ext. 304.

PROGRAMMERS & OPERATORS

FREE LIST

of vacancies to suit you

ALL AREAS

Please now 01-636 0171

The best service of

Computer Consultants

Circle 10 on Reader Card

01-636 0171



PROGRAMMERS.

We're issuing tickets to the top.

We're the country's leading manufacturer of fare collection systems and have a world-wide reputation to keep up. So we're not resting on our laurels.

In fact, with the vast technological resources of the EMI group behind us we're moving into completely new areas. Like the revolutionary micro-processor based ticket system we've just developed.

And we need people like you to help make the most of our plans for the future.

You'll need at least a year's experience of programming in Assembler or any low level language and should've worked on micro or mini-computer systems.

Depending on exactly how much experience you do have we'll offer you a salary between £4,500 and £8,500.

We're based in the pleasant market town of Cirencester, and if you have to move we'll help with the expenses.

So why not contact: Mike Hopper, PER Gloucester, Grosvenor House, Station Road, Gloucester. Telephone: 0452 25525.



SYSTEMS SOFTWARE ENGINEER?

We have a top notch training

and a growing job in

the computer industry

Write for details to:

Circle 11 on Reader Card

01-636 0171

PROGRAMMERS!

ALL LEVELS!

01-636 0171

COMPUTER PERSONNEL APPOINTMENTS LTD.

Career Specialists and Consultants for

D.P. MANAGERS, SYSTEMS ANALYSTS,

PROGRAMMERS AND

OPERATORS

100 Midland Avenue, Glasgow G2 7JL

For full details write to:

65 New Street, Birmingham B2 4DL 021-644 0881

MYRIAD

RELOCATE TO THE OIL FIELDS OF KENT ASSEMBLER PROGRAMMER

LARGE COMMERCIAL PROJECT

KENT

TO £6500

This is an ideal opportunity for an Assembler Programmer to gain complete project involvement working in a small team responsible for enhancing and maintaining data processing facilities for an important area of our client's organisation.

Based in one of the most pleasant areas of rural Kent the data centre houses some of the most advanced IBM hardware together with communications equipment which links sites throughout Great Britain and Europe.

In addition to a very competitive salary the organisation is able to offer a comprehensive benefits package which includes pension and sickness scheme and flexible hours. For those wishing to move to the area there is a very generous relocation package giving 100% expenses.

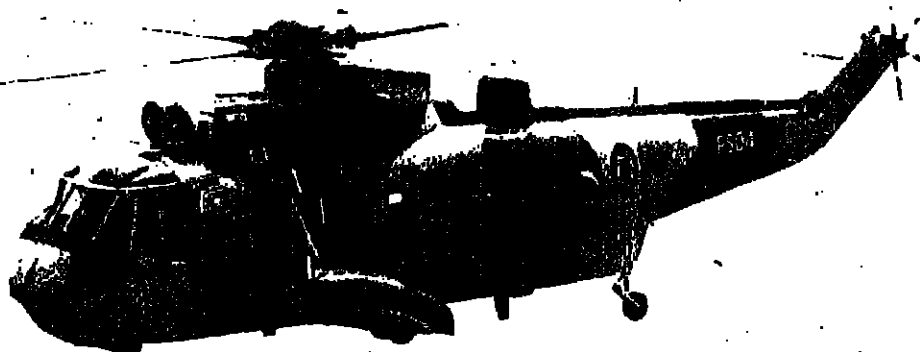
Telephone now for more detailed information regarding this position and the excellent career prospects offered.

Ref. SE1/1904

MYRIAD APPOINTMENTS LIMITED Computer Personnel Consultants
Telephone or write to:- 30 Fleet Street London EC4Y 1AA 01-353 0981 (24 hrs)

Applications & Systems Programmers

WATFORD



We're on the up and up - are you?

PL1 Applications Programmers
Responsible for maintaining and developing suites of computer programs using online program development facilities.
PL1 Programmers with either DOS or OS experience should apply. We would consider training you in PL1 if you have experience of DOS/VS, DLI, CICS/VS or DBOMP.

DOS/VS Systems Programmers
We are looking for Systems Programmers to become responsible for a number of functions. These could include installation software maintenance; hardware evaluation; advising colleagues on new machine software; interfacing with other Rolls-Royce sites.
Two years experience of IBM DOS/VS systems software and assembler programming is mandatory.
Experience of CICS/VS, DLI/1 an added advantage.

The Installation: IBM 370/138 1Mb, POWER/VS, CICS/VS, DLI/1, PANVALET, DBOMP.

Please apply with brief career details or telephone for an application form, quoting reference CW/67 to: Peter Banton, Rolls-Royce Limited, Aero Division, Leavesden, Watford WD2 7BZ. Tel: Garston 70/35.



AERO DIVISION

The Company
Rolls-Royce has had a record sales year with deals signed in 1978 that could be ultimately worth more than £2,000 million. Here at Rolls-Royce Aero Division we are engaged in the design and manufacture of a range of gas turbines for hovercraft, light aircraft and helicopters, both civil and military, including a major order programme for Westland Helicopters. For the computer specialist the impact of our recent successes is more subtle. It clearly requires a much increased emphasis on computer based design and control information systems in order to mount the highly complex design and manufacturing programmes needed. But less obviously it also creates that all important buoyant climate where new thinking and projects can thrive in a well motivated atmosphere.

***The Benefits**
Highly competitive starting salaries
Annual individual performance award system
Quarterly productivity bonus
Excellent sports and social facilities

CAMDEN'S GROWING GET IN NOW!

Chief Executive's Department

We have an exciting new development programme and are recruiting extra staff for our 1902T installation. Fourth generation equipment is being evaluated at this moment when an order is placed, full training will be given to all staff. At present we need:

SYSTEMS ANALYST

A minimum of 18 months' experience is required in systems analysis, in a commercial environment. Analysts will provide support and assistance to Project Leaders who are responsible for a team of up to seven analysts and programmers. Duties will include systems analysis and design, producing documentation to formalised standards. Salary on a scale up to £8495 p.a. (incl.) Ref. No. IC/56.

SENIOR PROGRAMMER

A minimum of 2 years' programming in COBOL or PL/I. Online MAXIMOP/DRIVER an advantage. Duties will include writing program specifications. Salary on a scale up to £8000 p.a. (incl.) Ref. No. IC/57.

PROGRAMMER — Career Grade

A minimum of one year's programming. Salary on a grade up to £5508 p.a. (incl.) depending on experience and ability. Ref. No. IC/58.

We are a friendly unit, working on widely varied applications, located at just about the busiest travel spot in London - King's Cross. All the generous benefits and security usually associated with local government employment including season ticket loan scheme, flexitime, etc.

For application form please telephone our 24-hour recruitment answering service 01-837 9988 or send postcard to the Chief Executive, Camden Borough of Camden, Town Hall, Euston Road, London NW1 2BU, stating post and appropriate reference number.

Camden - an equal opportunity employer
Applicants are considered on the basis of their ability for the post regardless of sex, race & marital status. Also registered disabled persons with the necessary attributes are welcome to apply.



The Bibliographic Services Division of the British Library requires an

Operations Manager

(Senior Executive Officer level)

The Bibliographic Services Division currently provides large scale on-line and batch services to its users, both from within the United Kingdom and also on an increasing scale in Europe. The processing of IBM 370 data is provided primarily from an IBM 370 bureau at Hurlow, but both current and future development work is concentrated on the large ICL 2900 range. In order to control those activities an ICL 2903 is currently being installed at the Division centre in London with links in both sites. The duties of the Operations Manager include the day to day running of the computer installation (covering operations and data control), liaising extensively with users and co-ordinating with both computer and COM bureaux.

Applicants should have had experience of supervision in an operational environment in addition to experience in operating ICL 2903 and 1900 equipment. Previous experience of IBM 370 Operating Systems and the training of data control and operations staff would be advantageous.
Salary Scale £8,491-£7558, including Inner London Weighting.
For an application form, which should be returned by May 3, 1979, please contact Mrs. L. Archer, The British Library, Personnel Section, Shenton House, Great Chapel Street, London, W1. Telephone: 836 1544 ext. 518.

The British Library

LONDON BOROUGH OF BRENT
WILLESDEN COLLEGE OF TECHNOLOGY
Principal: A. K. Bernard, BSc PhD, CEng, CMC

Department of Science
Required from September 1st.

LECTURER I

to teach COMPUTER SCIENCE together with some STATISTICS mainly to GCE A-level and CSE 744 and 747 students. Data Processing experience is essential.
Salary Scale: £3,688 to £5,808 inclusive.

Application forms (SAL) may be obtained from the

College Administrative Officer,
Willesden College of Technology,
Denzil Road, LONDON, NW10 2UL
Tel: 01-469 8141

and should be returned within four weeks.
Relocation assistance available in approved cases.

TRAINING MANAGER

c. £8,000
WEST LONDON

If your background is in lecturing or training, and you feel ready to meet the challenge of reorganising our Client's training Department in software, sales and administration, then we would like to hear from you.

Commercial software experience would be particularly useful as would experience of running a training department.

You'll join a leading mini computer manufacturer and will have ample scope to prove yourself in this demanding position.

For further details please contact
MARK IRENS quoting reference
CW/349/1.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HR.
TELEPHONE: 01-353 7141 (24 HOURS)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

SCOTLAND

SALES EXECUTIVE

Leading Mini Computer Manufacturer
Commercial Systems
Basic Salary £7,000 p.a.
+ negotiable guarantee
+ Company Car

This is a rare opportunity to join Our Clients, a leading Mini Computer manufacturer to manage a sales territory in Scotland.

We welcome applications from established Sales Executives from the Computer Industry who can readily identify with this growth area and have proven track records or successful sales against quota. Interviews will be held in Scotland but interested applicants should contact, in the first instance BOB BOWER, the Advising Director for further information.

Ref: CW349/2

HERTS, BERKS, WILTS, DORSET

SALES EXECUTIVES

Quota £13,000 p.a.
Realistic first year's guarantee
Plus Company Car
Distributed Data Processing and Communications

Our Clients are a leading manufacturer of Distributed Data Processing and Communications equipment and enjoy an excellent reputation in the market place. They are looking for a Sales Executive to manage the above territories and ideally, be resident in an area where he has easy access to the whole territory.

This is a superb opportunity for someone who can readily identify with an autonomous operation and has a proven track record in selling related equipment against a pre defined quota.

Please telephone BOB BOWER, the Advising Director for further information and to arrange a mutually convenient meeting.

Ref: CW349/3

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HR.
TELEPHONE: 01-353 7141 (24 HOURS)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

MADRID

APPLICATIONS

CONSULTANTS / SPECIALISTS

Real Time Distributed Network System

Duration: 2 years +

Remuneration: £28,000 to £13,000

plus U.K. Mortgage and Rate Subsidy

Our Client, an internationally respected systems organisation, requires Applications Consultants/Specialists who have demonstrable and sound knowledge and experience as a team or project leader with any of the following applications:

TRANSPORTATION DISTRIBUTION WAREHOUSING
PURCHASING ACCOUNTING PERSONNEL
EQUIPMENT, FLEET or PLANT MAINTENANCE
SALES ORDER ENTRY AND PROCESSING
FLEET DELIVERY SCHEDULING
FACILITIES AND MATERIALS CONTROL
STOCK RECORDING AND CONTROL

Applicants should have at least 4 to 6 years' systems or programming experience (preferably with small computers and COBOL) combined with the ability to effectively communicate their knowledge and skills to the local development teams. Spanish language ability is not essential however you will be required to read some Spanish in the course of the work. It is desirable for all applicants to have had some foreign duty/assignment experience.

This is an opportunity to help develop one of the most advanced distributed network systems, and just think what that will do for your career when you return to the U.K.

For further details and an immediate interview, contact JIM FORT now.

Ref: CW349-4

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HR.
TELEPHONE: 01-353 7141 (24 HOURS)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

THE OPEN UNIVERSITY DATA PROCESSING DIVISION

COMPUTER OPERATOR

up to £3,400

(Including an allowance for three shift working)

The University's rapidly expanding Data Centre provides support to the administrative and operational units of the University which now has approximately 70,000 home-based students. Promotions have created a vacancy for a UNIVAC 1100 Operator and applications are invited from persons over the age of 18, educated to 'O' level standard and who have up to one year's experience of major operating systems.

We offer: Career development opportunities; Training, including day release for computer studies; Good holiday provision - 4 weeks plus one week at Easter and Christmas; Sport/social facilities; Rural location with houses available to rent or to purchase at reasonable prices.

Application forms are available from The Recruitment Office (JD98/1), The Open University, P.O. Box 75, Walton Hall, Milton Keynes, MK7 8AL or telephone Milton Keynes 63404; there is a 24-hour answering service on 63688.

Closing date for applications: 4th May.

ANALYST PROGRAMMER

(Ref. T.87)

AP3/5 £3,912-£5,254 inclusive

This post offers an opportunity to participate in the development of the full potential of an ICL 2903 Computer and also will be of interest to an RRG II programmer wishing to gain analysis experience.

The Computer Section is located in the Council Offices, High Street, Dartford, within easy reach of A2/M2 and Dartford Railway Station (35 minutes London Bridge).

A generous disturbance/relocation scheme is in operation. Possible assistance with housing.
Further details and application form, returnable by 27th April 1979, are available from Personnel Section, Manor House, Swanscombe Kent, Tel. Greenhithe (0322) 482431

DARTFORD
Borough Council

SYSTEMS ANALYSTS

Prestwich, Manchester

£4,959-£6,025

To work on a wide variety of systems, both batch and on-line.

The present installation consists of an ICL 1904S with terminals situated at remote locations. Work is already in progress in developing systems for small computers and reflects the positive attitude of the authority to new concepts and techniques. Future plans include the acquisition of a large 2900 computer in mid-1979.

Experience in or knowledge of Communications, N.C.C. Documentation, Standards, George II Operating Systems and Programming fundamentals will be advantageous. The ability to communicate with multi-disciplinary users is essential.

Starting salary will be commensurate with experience in the range £4,959-£6,025 per annum.

The Computer Centre, which affords a pleasant working environment in new premises, is within easy access of the M2 motorway (Exit 17) and convenient for local bus and train services.

Excellent condition include staff restaurants, recreational facilities, sports and social club, a free car park, a choice of starting times and in certain cases assistance with removal expenses.

Leave entitlement consists of 20 days plus the normal statutory and other concessional holidays.

Application forms and job description, etc., may be obtained from the Regional Administrator, North Western Regional Health Authority, Gateway House, Piccadilly South, Manchester M60 7LP, telephone number 061-236 8468 Ext. 425. Closing date 19th May 1979. Please quote reference number 1787A.

North Western Regional Health Authority
Prestwich, Manchester
COMPUTER CENTRE

DATA TERMINAL OPERATOR - GREENWICH

Standard Telephones and Cables Limited have a first-class opportunity for an intelligent man or woman, willing to work from nine to five, to operate the work-involves data control at our Greenwich data processing centre. The successful candidate will be responsible for the operation of the data terminal and will be required to have a good knowledge of the data processing system. Applicants should be aged between 25 and 40, must have a good standard of education - preferably with a degree or equivalent - and must be a resident of Greenwich or have the right to work in the United Kingdom. Working conditions and benefits are excellent and an application form, together with a full job description, may be obtained from the Personnel Section, Standard Telephones and Cables Limited, Greenwich Systems Division, Greenwich, London SE10 0AG. Tel. 01-858 2341 ext. 404.

New ICL 2970 Installation— Operations

Applications are invited for experienced operations staff to join the Computer Services Division which is currently installing a 2 megabyte ICL 2970 using VME-8.

Support Officer

Ref. CW/8/9196. Up to £4,581

Applicants should be experienced Senior Operators with at least three years' experience on large ICL mainframe equipment, preferably 2900 range. The successful candidate will demonstrate that they have the necessary operations and technical skills required for the post and will be employed on a non-shift basis as a member of a small team responsible for providing a general operating support service to the installation and its users. Responsibilities involve the setting up and control of all new systems from final stage of development to live processing, the preparation of operating procedures and customer liaison functions.

Senior Operator/ Controller

Ref. CW/8/9197. Up to £5,130

inc. Shift Allowance
Candidates should be experienced Senior Operators or Senior Operators with at least three years' experience on large multi-programming mainframe equipment, preferably with some supervisory responsibilities. Duties will include operating and controlling functions, working to pre-determined schedules, task diagnosis, liaison with management and staff and the training of staff personnel. A 2-shift system will be implemented.

If you are an ambitious person currently looking for career advancement in a challenging and progressive organisation, telephone 01-701 2870 any time for an application form, or write to:
The Personnel Office, London Borough of Southwark,
27 Peckham Road, London SE8 6UB
quoting the above reference and job title. Closing date 5.6.79.

Southwark

Recruitment



in Informatics

U.K. Re-Insurance Group City of London

Salaries: £6.5K-£9.5K +

A leading City of London based Re-Insurance and Merchant Banking Group with a recently acquired U.S. subsidiary with extensive and soon to be upgraded computing hardware requires additional D.P. personnel up to Project Manager level. Ideally you must offer a programming background in PL-1 under OS or MVS and will either have on-line expertise or a desire to move into this area or Data-Base design through participation in our client's training programmes. Of particular importance is the

ability to work as a member of a Specialist Project team under strict documentation and programming standards. A second language — ASSEMBLER/COBOL — would in addition be of considerable advantage. Our client in addition to an excellent salary offer a reduced rate mortgage, private health and non-contributory pension schemes plus restaurant facilities. Interviews will be held on the company's premises in early May.

L19004

Systems Engineers Belgium

Salaries up to £15K

An internationally renowned supplier of Data Base and Teleprocessing Management Systems has requested Logistix to identify top calibre D.B. or T.P. Systems Engineers. Technically speaking you must have current experience in the implementation and support of Data-Base and/or Real-Time systems. Suitable applicants should offer IMS DB/DC exposure although due consideration will be given to those having extensive knowledge of an independent suppliers' software. You could presently be engaged in the areas of budgeting/forecasting, foreign exchange/investment or the presentation of products to both English and French speaking executives

within a seminar environment. Consequently whilst fluency in French is not a pre-requisite (since language courses can be provided at the company's expense) a certain knowledge of the language is desirable. The higher than average salaries (even for Belgium) reflect the prominence which our client places in the acquisition of these key personnel. Excellent benefits include full relocation expenses, life and disability insurance, pension/medical plans and a housing allowance. We will conduct first interviews after which candidates will spend a day with the company before offers are made.

L19004

Applications Support Experts Netherlands

Salaries: to £15,000

If you wish to relocate immediately to a permanent based career position in the Netherlands please read on... You should offer considerable expertise in two or more of the areas outlined below. The required areas of expertise are: (a) Quality Assurance, (b) Advising development departments of software usability, (c) Pre and post sales support, (d) Problem solving on site and in-house, (e) Release preparation and (f) Evaluation of new products and techniques. In addition to above average salaries, our client will pay

full relocation expenses, assist in obtaining permanent housing (which in the case of this company is more readily available than in usual in West Netherlands) and will meet the cost of Dutch language courses for the employee and his partner. Of course, a pension plan and a health insurance scheme form an integral part of the package. There are real opportunities for transfer worldwide throughout the company's organisation.

L19004

Interdata Programmers West Germany

Salaries: to £15K

An international client with a long track record of successfully implementing new systems for European Public Institutions and Government Agencies is seeking several INTERDATA orientated Programmers for a long standing German project. They now require additional personnel to cope with the installation of new hardware and extended applications areas. You will become a member of one of several specialist project teams in which you will make a valuable contribution whilst simultaneously expanding your own technological frontiers. We are

specifically requested to recruit only FC XTRAN and Assembler Programmers who are fully familiar with Interdata 8/32 hardware. You should therefore offer two years or more programming experience on this machine. The applications areas in which you will be involved comprise mathematical modelling, testing, data communications and verification. On completion of the project you will be given every opportunity to relocate to one of the company's other European offices.

L19004

Camac Programmers Copenhagen or Holland

Salaries: to £15K

Scandinavia's leading Systems House and Software Consultancy seeks several Programmers with current expertise of software development and design on micro processors, preferably Intel 8085/86, Zilog Z80 and Motorola 6800. You will be required to

relocate immediately to one of our client's European offices. It is anticipated that employment will commence in either May or June. For further information telephone one of our Recruitment Advisers immediately.

L19004

Logistix, Freeport 32, London W1E 3YZ

360 Oxford St.
London W1N 9HA

Licenced by D.O.E.

Licence No. SF (A)2887

01-491 4636



Telex: 28800

SYSTEMS PROGRAMMERS for COMMUNICATIONS DEVELOPMENT

Sia
COMPUTER SERVICES

£6,500-£8,500

SIA provides a nationwide technical computing service based on linked CDC Cyber 175 and 6600 mainframes backed up by a strong consulting team. Currently over 200 batch and teletype terminals are supported through Modcomp front-end processors.

The operating systems for both the CDC machines and the Modcomp mini-computers are developed and supported by SIA's System Development Team which is located at the company's headquarters in Victoria. There is an on-going programme of system development and important new projects are scheduled for the immediate future, particularly the support of new network communications protocols and European datalinks.

If you are a systems programmer with experience in telecommunications, mini-computers or CDC operating systems and would like to know more about the opportunities offered by a career at SIA, please write or telephone:

MISS SUE KEMP, SIA LIMITED
23 LOWER BELGRAVE STREET
LONDON SW1W 0NW
01-730 4544



OPERATORS up to £6,000

Mainframe experience?
Used to on-line pressure?
READ ON

We are based in W1 and run 4 dual processor 448K word DEC SYSTEM 10S — part of the largest integrated Dec installation in the world, consisting of 24 DEC SYSTEM 10S on a network of over 100 PDP 8S and 11S spread throughout the U.K.-Europe-U.S.A.

YOU'VE GOT THIS FAR READ ON

- Income up to £6,000
- BUPA
- 24 hour medical coverage
- guaranteed two weekends off in four
- proven upward career in operations
- free meals
- generous sickness and holiday
- contributory pension scheme (5% emp. 7% co.)
- continental 24 hour shift system
- opportunities to move into other departments

Give us a ring Tony Harris or Peter Pearce on 01-637 1355 or write (including your job history) to: Peter Clements, ADP Network Services Ltd., 179-193 Great Portland Street, London W1N 6TB.

UNIVERSITY COLLEGE
CARDIFF

Applications are invited from graduates for the post of

SYSTEMS PROGRAMMER

In the COMPUTING CENTRE, to assist in the maintenance of the system software on the current ICL 470 computer and the evaluation and introduction of a replacement machine scheduled for 1980/81. While previous System 4 experience is desirable, particular emphasis will be attached to an applicant's breadth of experience.

Applicants will be made on the Other Related Grades 14 £3800-£5000 p.a. or 18 £3800-£5000 p.a. (under review) according to exp. qualifications and experience. Duties to commence 1st July, 1979, or as soon as possible thereafter.

Applications (two copies, together with cv and references) should be forwarded to the relevant Head of Department, Vice-Principal (Administration) and Registrar, University College, P.O. Box 24, Cardiff CF1 1TL. For whom further particulars may be obtained. Closing date for applications: 1st May, 1979.

UNIVERSITY OF SURREY
COMPUTING UNIT

APPLICATIONS PROGRAMMER

The University are installing a large multi-processor system during the summer and applications are invited for the post of Applications Programmer within the Computing Unit.

The successful candidate will be expected to work on the development of software for the new system.

The salary will be on the scale £3800-£5000 p.a.

Further particulars can be obtained from the Officer, University of Surrey, Guildford, Surrey GU10 3XH. Telephone GUILDFORD 77221. Applications in the form of a curriculum vitae, with names and addresses of two referees, should be sent to the Officer by Wednesday 23rd May 1979.

MYRIAD

ANALYST/ PROGRAMMER

IN LINE FOR SYSTEM 38

W. LONDON

TO £8000

An attractive opportunity has now arisen for an additional analyst/programmer to join our client who is currently planning for the introduction of an IBM System 38 into the installation.

The person appointed can look forward to developing systems with a high degree of self-motivation, from feasibility through to implementation. On-line systems are of great importance and present development plans include an extension of these facilities.

The successful applicant will be able to offer a sound RPGII/CCP commercial programming background, preferably obtained in an IBM System 3/15D environment, coupled with the ability to work with new techniques and make a strong contribution to the development effort.

Our client is a very successful manufacturing and marketing company in a major international group. In addition to a competitive starting salary they offer a subsidised canteen facility and a highly favourable discount on company products as part of a comprehensive benefits package.

Ref. NW1/1904

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA

01-353 0981 (24 HOURS)

UNIVERSITY OF HONG KONG

SENIOR COMPUTER

OFFICER I/II

F INTERNATIONAL LIMITED

SYSTEMS ANALYSTS & PROGRAMMERS

Continuing our period of planned expansion we would be pleased to meet Systems Analysts and Programmers with a minimum of 4 years' experience interested in either part-time home based or full-time opportunities within one of the country's leading systems houses.

Come and meet us for an informal discussion on Tuesday, 24th April, at: (between 1800 and 2100 hours)

Post House Hotel Emerson District Five
Washington
TYNE AND WEAR
Victoria Hotel Milton Street
NOTTINGHAM
Grand Hotel Aytoun Street
MANCHESTER
(between 1700 and 2100 hours)
Midland Hotel New Street
BIRMINGHAM

If you are unable to come along then or are interested in opportunities in other parts of the country please contact the Personnel Manager, F International Limited, The Bury, Church Street, Chesham, Buckinghamshire HP5 1LB (Tel. Chesham 02405 4999) for detailed literature. Please quote Ref. No. OE/14

F INTERNATIONAL LIMITED



Applications are invited for two posts of Senior Computer Officer (I/II) in the University Computer Centre. One of the appointments is in the area of academic user services. The successful candidate is to organise and develop user services on all the Centre's computer facilities, and to provide consultancy and support to academic staff members and students. Applicants should have extensive prior experience of user services in a university or other education/research institution.

The second appointment is for support of the University's administrative applications, in analysis and implementation of new systems and in review and conversion of existing systems. Applicants should have a minimum of three years of experience in system development work in a university or other education/research institution. Preference will be given to persons with experience in on-line applications.

Annual salaries (gross) payable will be: Senior Computer Officer I: HK\$198,700 x 4,200 = £120,000; Senior Computer Officer II: HK\$178,320 x 4,200 = £108,140. (£1 = HK\$1.00 approx).

At current rates, salaries will not exceed 1% of gross income. Housing allowance of 15% of salary, education allowances, long leave and medical benefits are provided.

Further particulars and application forms may be obtained from the Association of Commonwealth Universities (Acus), 38 Gordon Square, London WC1H 0PF, or the Assistant Secretary (Recruitment), University of Hong Kong, Hong Kong. Closing date for applications is 31st May, 1979.

QUEEN MARY COLLEGE

University of London

ELECTRICAL AND ELECTRONIC

ENGINEERING DEPARTMENT

Applications are invited for:

2 LECTURERS

In the Department which has official recognition for Telecommunications Engineering, Electrical and Electronic Engineering and Control.

(1) to be in charge of the high-voltage and high-power laboratories, preferably with industrial and research experience; to be able to work in a highly specialised field of electronic systems on application of telecommunications engineering, particularly in the field of microwave engineering and control.

Other appointments for research and teaching in the Department are available. Salary scales are available on request. Applications should be sent to the Department Secretary, Queen Mary College, University of London, Mile End Road, London E4 3DF. Closing date: 1st May 1979.

Applications should be sent to the Department Secretary, Queen Mary College, University of London, Mile End Road, London E4 3DF. Closing date: 1st May 1979.

Applications should be sent to the Department Secretary, Queen Mary College, University of London, Mile End Road, London E4 3DF. Closing date: 1st May 1979.

Applications should be sent to the Department Secretary, Queen Mary College, University of London, Mile End Road, London E4 3DF. Closing date: 1st May 1979.

Is your computing career at a standstill? Co-op Bank offer you six good reasons for a change —

- * Stimulating and involving work with 'tomorrows' systems
- * Attractive salaries
- * Excellent career development opportunities
- * Re-location assistance
- * Low-interest mortgages
- * Full scale technical training and education in IPT techniques.

At our new purpose-built computer complex we need experienced and ambitious men and women to work with the major IBM 3031 mainframes, developing our new nationwide network, based on 3000 series terminal systems.

We shall be using DL1 database and CICS. We see here an excellent opportunity for programmers and analysts to broaden their scope within a fast growing banking organisation.

Senior Systems Analysts—up to £6,696—

to undertake major analysis and design work related to the new systems. You should have a number of years experience of analysing and designing applications for IBM 370/3030 systems.

Systems Analysts—up to £5,676—

working in teams with the Senior Analysts.

Senior Programmers—up to £5,335—

who have several years experience - preferably of IBM installations using both COBOL and ASSEMBLER.

Our new complex is located at Skelmersdale in the heart of Lancashire. Reasonably priced and attractive housing is readily available, offering the beautiful Lancashire coast or the rural areas north of Manchester and Liverpool as new places to settle down. The motorway network and nationwide rail links make travel easy. The neighbouring towns and two major cities offer entertainment of such a variety as to please all tastes.

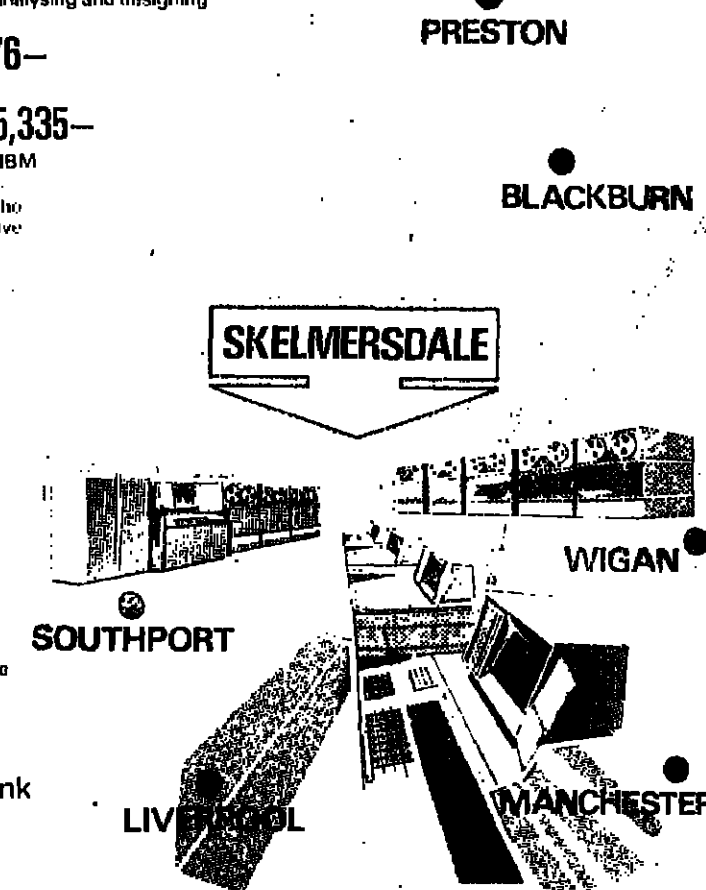
Starting salaries will be based upon your own experience, and we offer the full range of banking benefits.

For further information about our future and your advanced computerised banking, please write with full details to R J. Gurney, Personnel Manager, Co-operative Bank Limited, P.O. Box 101, New Quay, Wigan, Lancashire, Wigan, Merseyside.

P.S. If you are interested but your qualifications or experience do not quite match, we would still be interested in hearing from you, as we also have vacancies below these senior levels.



The Co-operative Bank



OPERATORS

ICL 1900 to £5000
Sited in SW London & Essex require Senior Operators with 2 yrs OIL exp. 2 Shifts only.

ICL 1900 c. £3500
Century 1 starts requires an operator with 9 mths' exp. in OIL/Manual Operating. Good career prospects for the right person. 2 Shifts only.

UNIVAC £4200
Installation in W. London is looking for an Operator with 18 mths' + 1108 exp. Prospects of travel for right person.

HONEYWELL £4000
Operators with some exp. in GCOS are required for this site in W. London.

NCR £4000
Company in Essex are looking for an operator with 9 mths' Century/Criterion exp. Own transport is a requirement for this position.

IBM OS £6300
Are you a S/Leader with 3 yrs' supervisory exp. and feel you have senior management potential? Then this leading company in Central London is for you!

IBM OS £5600
4 yrs' experience reqd. plus 1 yr. as a S/Leader for a site in Central London as a Supervisor.

IBM OS £4600
Operations with 8 mths' exp. required by companies in Essex, Essex & Central London.

IBM DOS £5000
Senior Operators with 2 yrs' exp. required by 3 companies in East London. 3 Mth mortgages is only part of the total package available.

IBM DOS £4600
Operations with 8 mths' exp. reqd. by this Company in C. London. Excellent career prospects leading to programming.

DATA CONTROLS ALL AREAS £4000-£5000

TARGA COMPUTER SERVICES

3 LIVERPOOL STREET LONDON EC2M 7NH 01-283 2751

We're successful because our staff are

Data Logic operates at the forefront of computing, applying the very latest hardware and techniques to practical commercial problems. We cover the range from mainframes to the smallest computers. We are leaders in the use of microprocessors for applications that not so long ago required far larger machines. Several of our projects involve dispersed networks of ten or more minicomputers.

The exceptional scope of work is important to our staff. We can match their individual experience to their projects. Equally, we can ensure that each project adds to their experience. As

computing itself develops, so do they.

Over the past year Data Logic has grown dramatically in size, in scope of work and in reputation. Our expansion has meant unrivalled opportunities for career progression. We are not prepared to promote people before they are ready for it. But when they are ready — and we give all the assistance we can — the positions as senior programmer, senior analyst, project manager and consultant will be there waiting for them.

The reason is simple. We know that we are successful only if our staff are.

Senior Software Staff

(Ref PS/01)

For mainframe, minicomputer and mixed processor systems, usually supporting terminal networks. Increasingly Data Logic's turnkey projects involve minicomputers at multiple sites.

Applicants must have at least five years experience including some work in consultancy, system design or team management. Substantial knowledge is required of either high level language implementation on a leading mainframe or assembler language development on DEC, Data General or other leading minicomputers. We are especially interested in experience of:

- database systems
- distributed systems
- data communications
- telemetry
- operating systems design and implementation

Salaries will be up to £8,500, with a car allowance or company car for those at the top end of the scale.

There are vacancies at our Greenford, Birmingham and Manchester offices.

Programmers

(Ref PS/02)

For both mainframe and minicomputer projects which include commercial applications, monitoring and control, and scientific analysis.

Applicants should have at least three years programming and/or analysis experience in high-level language or assembler on any leading mainframe or mini. Salaries will be in the range of £4,500 to £6,500.

Vacancies exist in our Greenford, Birmingham and Manchester offices.

Data Communications Support Engineers

(Ref CP/01)

For sales and engineering support roles within Communications Products Division which markets the INTERTEL range of modems and Network Control Systems.

Applicants should have experience either in sales support for data equipment or in design for digital and analogue systems. A degree or HNC qualification is desirable.

Base location will be in Central London but high mobility will be essential and a car will be provided. Salaries will be in the region of £6,500.

Systems Support Staff

(Ref CE/4)

For specialist support roles within our Customer Engineering Division, which provides nationwide field service for terminal and distributed systems, word processors and data communications equipment. The support staff deal with hardware and software, within a diversity of user environments. Each product represents the state-of-the-art in its area.

Applicants should have a degree in electronic engineering or computing science, followed by at least three years work in specialist support with a mainframe manufacturer.

Base location will be Harlow, Essex but high mobility is essential and a car will be provided.

Programmers

(Ref TS/03)

To work on systems software, emulators and advanced packages for applications such as data entry, for Data Logic's PFS100 range of terminal and distributed systems. This is an outstanding opportunity to gain experience in the development of complex high performance standard software. Programmers will work in small teams, taking considerable responsibility for distinct functional areas of the total system.

Applicants should have one to three years experience of software implementation in high-level or assembler languages. A degree in computing science is desirable.

Location will be Harlow, Essex and salaries will be in the range of £4,500 to £6,500.

Data Logic

Write or call, quoting the appropriate reference:
Kathy Martin, Data Logic Limited, 29 Marylebone Road, London NW1
Telephone 01-486 7288.

A Raytheon Company

Handwritten note: 1st 1/2 1979

CONSULTANT

quota £10K +

You probably have a successful background in permanent recruitment, your present income is around the £6000-£8000 bracket and you are hungry for more money BUT most of all you are frustrated by the limitations of your current position — in other words you need —

MORE FREEDOM TO WORK MORE SCOPE ★ AND MORE MONEY

then we may have just what you are looking for!

Now that we have established a successful Permanent Division, we require someone who can take over this Division and expand it and, ultimately, taking full managerial responsibility (and the perks that go with it).

IF YOU'VE GOT WHAT IT TAKES
Telephone us now in strictest confidence

HEXAGON
Computer Services

145 WARDOUR STREET LONDON NW1V 3TB

TEL 01-439 3671

ICL Computer Operators

Enfield

£3,700-£5,700

(including shift allowance)

* ICL 1900's

* IBM 360

* ICL 2900's

* Communications

For operators with ICL experience, this is a chance to widen your skills in a whole range of hardware and software. We have the equipment, the training commitment and the opportunities to increase your experience significantly.

Our existing installation in Enfield comprises an ICL 2972/VMEB system due for enhancement to a dual 2972, three large ICL 1900 mainframes and an IBM 360 system. The installation lies at the centre of an extensive communications network covering East Anglia.

As we expand our operations to cover the transfer from 1900 to 2900 work we will require more operators; preference will be given to trained operators with a minimum of two years experience on ICL 1900 systems.

The salary will depend on your experience and will be within the range of £3300-£5000 p.a. plus 17% shift allowance on basic pay. Benefits include subsidised restaurant, 4 weeks holiday p.a., pension and sickness schemes, sports and social facilities etc. These positions are open to both male and female applicants.

Application forms can be obtained from:

The Personnel Officer,
Eastern Gas, Tower Point,
Sydney Road, Enfield,
Middlesex.
Tel: 01-366 1234
ext. 227 or 402.

EASTERN GAS

OPERATORS!

For the best permanent jobs

E.g.	DOS/VS	2 x OPS	E.LDN	£3000
IBM	SYST 3	SNR OP	N.LDN	£3500
ICL	2804	SNR OP	DAYS	£4800
IBM	OS/VS	2 x OPS	W.LDN	£3000

COMPUVAC

253 5042

DATA CONTROLLERS!
ALL LEVELS!

PROGRAMMERS
ANALYSTS

VP

Systems Analyst

Between £5,517 and £6,853 (inclusive) to start

The Computer Section is responsible for developing and implementing a wide variety of systems on the Council's ICL 1902T installation with communications equipment. This vacancy has arisen through internal promotion.

WE WANT

- * A Systems Analyst, who has designed and implemented at least one major system.
- * Experience of 1800 software.

WE PREFER

- * Professionally qualified candidates with Local Government experience.

WE OFFER

- * A starting salary between £5,517 and £6,853 on a scale rising to £8,545 (inclusive).
- * Annual leave entitlement 22 days plus one extra day's leave each month.
- * Pension scheme and subsidised staff restaurant.
- * Systems work in an interesting variety of applications.

Please contact John Allcock, Borough Treasurer's Department, 22-26 Clements Road, Ilford IG1 1BD, telephone 01-478 3020, extension 308, for an application form.

Redbridge
London Borough

IMPERIAL COLLEGE OF SCIENCE
AND TECHNOLOGY
DEPARTMENT OF MANAGEMENT
SCIENCE

**ASSISTANT TO THE
COMPUTER
MANAGER**

Applications are invited for the above post. The person appointed should be able to carry out a variety of duties under the general guidance of the Department's Computer Manager.

Applicants should have an Honours degree in a relevant subject, preferably in Mathematics, Physics, Computing Science, or a related subject, with a minimum of two years' experience in a similar post.

Further particulars may be obtained from the Department's Computer Manager, Imperial College of Science and Technology, Silwood Park, Ascot, Berks SL5 7QF.

Applications should be sent to the Department's Computer Manager, Imperial College of Science and Technology, Silwood Park, Ascot, Berks SL5 7QF.

Applications should be sent to the Department's Computer Manager, Imperial College of Science and Technology, Silwood Park, Ascot, Berks SL5 7QF.

Applications should be sent to the Department's Computer Manager, Imperial College of Science and Technology, Silwood Park, Ascot, Berks SL5 7QF.

Applications should be sent to the Department's Computer Manager, Imperial College of Science and Technology, Silwood Park, Ascot, Berks SL5 7QF.

Applications should be sent to the Department's Computer Manager, Imperial College of Science and Technology, Silwood Park, Ascot, Berks SL5 7QF.

Applications should be sent to the Department's Computer Manager, Imperial College of Science and Technology, Silwood Park, Ascot, Berks SL5 7QF.

Applications should be sent to the Department's Computer Manager, Imperial College of Science and Technology, Silwood Park, Ascot, Berks SL5 7QF.

Applications should be sent to the Department's Computer Manager, Imperial College of Science and Technology, Silwood Park, Ascot, Berks SL5 7QF.

THE SALES AND MARKETING BIT

TERRITORY MANAGEMENT—1

The Journey Planning System

A SALESMAN who is out of touch with the people supporting him is likely to be out of touch with sales success.

Ask any sales secretary how she makes contact with salesmen whenever urgent situations arise. Her answer is almost sure to be "With considerable difficulty".

Yet it is absolutely essential that rapid communication with the salesman is achievable at all times if the immediate reaction that problems and opportunities usually demand, is to be put into effect.

Many salesmen operate like undercover agents, surreptitiously creeping from one clandestine meeting to another, as if they were peddling heroin rather than selling data processing products, breaking cover only to collect their expenses and attend the monthly Mafia meeting.

It is undeniable that where there is mystery concerning the activity of salesmen there is also inefficiency. People seldom hide those facets of their nature which might increase their esteem among their fellows.

So, when a salesman cannot be found it could mean that he is disorganised, dishonest, lazy, inefficient, certainly not management material and possibly looking for a new job. However, the most likely failing, is the lack of an effective journey planning system.

A journey planning system is simply a device which helps the salesman to construct a logical sequence of sales calls for the week(s) ahead and takes into account such factors as geography, call frequency, client category, and special situations and priorities. It is a system which tells the salesman and his supporting colleagues who? When? Where? Why? at a single glance. It is an essential device in terms of both efficiency and discipline.

A single form is all that is required to create a controlled situation for both sales calls and salesman/office communications. The essential elements are obvious: Time/Day; Company; Name of Contact; Telephone No; Purpose of Call; Appointment or Cold Call; Overnight address and Telephone No.

A copy of the completed form to interested parties is all that is needed. The making of appointments, it is important that a journey planning system is accompanied by efficient, geographically oriented client records in order to facilitate, both efficient routing and the possibility of unscheduled, speculative calls on existing and prospective clients in the same locality. (This would normally exclude first-time calls.)

New branch

The Data Communications Division of Harris Systems has opened a new South of England branch office at Bantle House, Cambridge Grove, Hampton, London W8. Tel: 01-741 0001.

It is preferable that the journey plan be generated 2/3 weeks in advance of intended calling as opposed to the usual one week. Most people manage to keep their diaries full at least one week ahead, so a two-week lead-time tends to generate less "busy signals" and is more likely to avoid the pressure of "squeezed-in" appointments.

One good discipline when making appointments, which usually generates at least a couple of extra sales calls a week, is to arrange the first and last appointment for each day before those in the middle.

Another factor to consider is the best time of the week to perform this administrative function of appointment making. Most salesmen leave this task for Monday mornings and Friday afternoons. If that is the case, maybe those times would be less competitive for actually making calls and the middle of the week better for administrative activity?

Just a thought!

TRADER

PRODUCT NOTES

Digital locking system

A DIGITAL combination system, specially designed for computer suites, banks and other high security areas, has been introduced by the Baron Security Group.

The Digital Combination System eliminates the use of keys for mechanical locks and enables authorised personnel to change the operating code at will. On pressing the correct code, the door unlocks immediately.

The control unit is housed in a lockable steel box, and an alarm facility warns of intruders pushing numbers on the keyboard. It is priced at £163 plus VAT.

The Baron Security Group (CW), 62 Monmouth Street, London WC2H 9EP. Tel: 01-836 6128.

Colour prints for 35p

GETTING hard copy output from a Viewdata terminal is still difficult, particularly in colour, but Graphic Display Systems of Cambridge sells a polaroid camera with a five-inch lens for £188 and a hood to position it in front of a 20-inch screen for £85, which will then give colour prints for 35p each.

Although there are cheaper polaroid cameras available, GDS managing director John Davidson says that a five-inch lens is necessary to ensure freedom from distortion.

Puzzle Answer

288 x 2 = 576
576, 140 x 6 = 8,420,840.

SARAH COVENTRY LIMITED ANALYST/ PROGRAMMER

The Company has been established in the United Kingdom for some fifteen years and is a subsidiary of one of the leading jewellery direct selling companies in America.

An opportunity has arisen for an analyst/programmer to take the responsibility of the present computer department.

The primary job will be to examine and make proposals for an upgraded system from the present ICL 1901 A. This will involve preparing project drafts and agreeing specifications with the relevant user departments before planning, writing, testing and documenting programs.

This important task will be in addition to maintaining current systems and supervising the present computer operating staff.

The person will require tact, drive and enthusiasm, will have a minimum of 2 years' experience of COBOL and have been educated to 'H' or 'A' grade.

An attractive salary is offered and the Company has a contributory pension scheme. Housing is readily available in the area which is a pleasant and agreeable part of the country.

Apply, giving full details of experience to:

Personnel Manager
Sarah Coventry Limited
Eastfield Industrial Estate
GLENROTHES, Fife KY7 4NR

Computer Programmer

AP2/4

Total salary in the range £3,912-£4,812

The Council operates an I.B.M. System 3 Model 12 with 3340 Disk Drives and a 3411 Tape Drive which provides a comprehensive and increasing range of user services.

Applications are invited for this new post from programmers with two years' RPGII experience to join our team at the Council's Knowle Green Offices, Staines, Middx.

Application forms and further details are available from the Personnel Office
Council Offices, Knowle Green, Staines
Middx. TW18 1XS

Tel: Staines 81488, Ext. 250

Closing date: 4th May 1979

Spelthorne

FORTRAN

ENGINEERING SCIENTIFIC BACKGROUND

CONTACT US, THE SPECIALISTS IN THESE FIELDS

We urgently require Programmers with experience of Fortran, Assembler, Coral or Basic for Real-time Applications.

Jobs from £3,500 to £8,000 in all areas. Phone now for a free list of vacancies.

Capital Appointments, 28 Windmill Street, London, W1
Telephone: 01-837 8551 (day) — 01-828 9859 (even.)

Operations Vacancies VICTORIA, LONDON

Phillips Petroleum Company has continued to be in the forefront of North Sea Oil and Gas development. Our computer installation, situated close to Victoria Station, is based on an IBM 3031 processor under OS/VS1 with plans to install a second IBM 3031 and migrate to MVS/JES 3 during 1980. A large teleprocessing network is an integral part of the system serving both local and remote users around the globe. The developments within this sphere of activities have necessitated the acquisition of highly motivated DP professionals to fill the following vacancies.

CHIEF OPERATOR (Ref. DPO/479/001)

To supervise the day-to-day running of the central computer installation providing a reliable and totally available system (24 hours/365 days/year). The successful candidate will be responsible also for recruitment and training of operating personnel, the writing and maintenance of standards, the production of monthly reports and liaison with users and manufacturers. Current staff level reporting to the Chief Operator is 15.

You should have a minimum of five years' DP experience of which three years will have been at supervisory level in an operations environment, a thorough understanding of IBM hardware/software, experience of teleprocessing networks and a proven record of project coordination and management reporting.

SHIFT LEADER (Ref. DPO/479/002)

We require an experienced supervisor to run our computer facilities on a shift basis. The successful candidate should have at least five years' experience on IBM 370/303X under OS and good understanding of IBM software/hardware. Telecommunications experience would be an advantage. A 12-hour shift system is in operation with at least one week in five working normal office hours. Shift allowance and time off is generous.

TELECOMMUNICATIONS NETWORK CONTROLLER

(Ref. DPO/479/003)

A newly created position reflecting the increasing importance of the teleprocessing aspects of the company's business. The Network Controller will be totally responsible for the day-to-day running of the teleprocessing systems from an operational viewpoint, including liaison with users, the systems software and telecommunications groups, and the collection and analysis of statistical information. You will also be involved with identifying and analysing VDU and line problems, making any necessary arrangements for alternative facilities and organising back-up and recovery procedures to ensure speedy systems restoration.

We are looking for someone with at least four years' operations experience, some of which will have been spent controlling a telecommunications network. A comprehensive knowledge of telecommunications theory and facilities is essential.

OPERATIONS SUPPORT ANALYST (Ref. DPO/479/004)

We are interested in people experienced in the control and maintenance of program and procedure libraries, the ability to write production JCL for business applications, and an appreciation of data security methods. You will be involved in the analysis of our current production systems and recommending and implementing changes to improve reliability and operating efficiency, the writing of JCL for new applications, and the testing of new or amended systems prior to handover to the production control group.

A thorough knowledge IBM JCL and utilities and a knowledge of business systems and analysis techniques is required for this position. Telecommunications experience would be an advantage. This position carries a shift allowance.

If you are interested in a challenging career in a fast moving industry — with salary and benefits to match the experience, skill and effort which these jobs demand — then please write or telephone for an application form.

B. Sutherland, Placement and Training Unit, Phillips Petroleum Company Europe-Africa, Portland House, Stag Place, London SW1E 5OA. Tel. No. 01-828 9788. 24-hour answering/recording service on 01-828 2893.

Phillips Petroleum Company
The Performance Company



TEESIDE POLYTECHNIC
DEPARTMENT OF
MECHANICAL
ENGINEERING
RESEARCH
ASSISTANTSHIP:
AUTOMATION OF
SMALL BATCH
PROCESSING

Applications are invited for an LEA Research Assistantship to work on the Automation of Small Batch Processing. The aim of the project is to apply microprocessor technology to bring computer-aided manufacturing techniques within the range of small firms. The post is available for up to three years at a salary of £2,553-£2,774 and involves up to six hours' teaching per week, without additional payment. Registration for a CMAA higher degree is expected. Candidates should have or expect to get a degree in a discipline involving computer science; computer technology; or control engineering with some computer content. Application forms and further particulars are available from the Staffing Section, Teesside Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 2BA, and are available within 14 days of the appearance of this advertisement.

LONDON SCHOOLS OF
BRIEFING AND TALKING
JOINT COMPUTER INSTALLATION

SHIFT LEADER

(Salary £4,510-£4,822 p.a., inc.)

requires to head the team operating our IBM 370/145 installation.

Applicants should have a good working knowledge of OS/VS1 coupled with the ability to communicate effectively, and to solve operational problems.

The section works on a two shift basis, and the successful candidate (male/female) will take on the overall level of responsibility for the efficient running of the installation.

Application forms from Personnel Office, Room A205, Town Hall, London, EC2M 3AT, Tel. 01-858 2454 ext. 3380. Closing date 4/5/79. Please quote ref. no. 277 FC.

JUNIOR PROGRAMMERS!

ANY LANGUAGE!

CONTACT US NOW

CITY OF BIRMINGHAM EDUCATION DEPT.

St. Philip's R.C. Sixth Form College
Hagley Road, Edgbaston B16 9UP

Required September

Graduate to teach CHEMISTRY

to Advanced Level and able to assist in teaching of BIOLOGY, Scale 1. Post would suit student completing his/her professional studies this June.

Applications (by letter in first instance) including curriculum vitae and the names and addresses of two referees, should be sent to the Principal by 30th June possible. There is a scheme for assistance with removal expenses.

South East Thames Regional Health Authority

Senior Software Programmer

Salary Scale 14, £5951 (including London Weighting)

New post to develop software and programs for distributed processing.

Application Form and more information from Administration Department, South East Thames RHA, Regional Computer Centre, Baker Drive, London SE11 4TH. 01-320 0711 ext. 1.

MAGAZINE TECHNICAL EDITOR

Technical Editor needed for new monthly (London-based) computer magazine — previous publishing experience a help, though not essential. Applicants should have a thorough and wide ranging knowledge of present day computer technology and its applications. Salary is negotiable.

Also freelance writers required for the same project.

Write to: Bruce Sawford
14 Roperwood Place
London E12 7JF
or telephone 01-827 7791

OPPORTUNITY KNOCKS...

PROGRAMMERS

HEMEL HEMPSTEAD

Marvelous opportunity to join a small team and be in the 'youngest' Microcomputer Computer — a Division of Data Efficiency Ltd. — that has already formed to market turnkey systems on Micro Computer Systems.

We urgently need professional, ambitious, competent programmers to help build more standard business packages and special application programs based on ability to work to tight schedule and sound commercial application support.

Realize your ambitions through working with Microcomputer Computer — Tel. 0442 28181.

Or call/write to them at: MICROBENIS COMPUTERS

Flower Road, Hemel Hempstead, Herts HP2 4JL

SURREY SUSSEX

Working in SURREY and SUSSEX

Working in SURREY and SUSSEX

Working in SURREY and SUSSEX

Our client, a major United Kingdom name with head office in West Yorkshire wishes to recruit a Data Processing Manager.

This is a key position, reporting directly to the Finance Director, carrying responsibility for a department of 90 people and hardware currently installed worth in the order of £1 million. Current and planned developments involve new systems throughout all the main operational areas of the company and will employ on-line processing and database techniques.

Successful candidates, preferably graduates or professionally qualified, aged mid to late 30's must have extensive data processing experience in a commercial environment. A record of success in implementing major new systems and managerial achievement in data processing are essential requirements for this demanding and challenging position.

An attractive remuneration package will be negotiated including salary from £10,000 plus car, free BUPA, relocation expenses where appropriate and other fringe benefits normally associated with a senior management appointment in a major company.

Applicants should contact Ivor Norton with full career details quoting reference CW/79019 in order to arrange an initial confidential discussion.

Sales Professional

* Location Manchester * Established Territory
* Number of Established Users * Enhancement Business

Realistic Earnings £14,500 to £16,500

This is a unique opportunity to join a market leader in distributive processing systems who are currently enjoying considerable success with advanced products in the local government sector. This particular vacancy is the result of promotion reflecting considerable well qualified sales potential.

You can expect a high proportion of enhancement business enabling you to meet the realistic quotas, combined with excellent software support that will ensure further market penetration. You will need a proven track record in the systems bureau or terminal

sales area with the enthusiasm and maturity to handle this senior post. Previous experience of local government would be an added advantage, (but is not essential).

THE REWARDS

Basic salary to £7,000 on quota earnings £14,500 to £16,500 and a flexible attitude towards first year guarantees. Other benefits will include company car or car allowance, excellent training and an organisational structure offering real career prospects.

For further details contact: DAVID WADE ON 061-833 0427 OR 0785 56013 (outside office hours).



Specialist Computer Recruitment Ltd

London 01-835 8871, 3 Mandeville Place, Wigmore Street, London W1M 6LB
Birmingham 021-238 9781, 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427, Blackfriars House, The Paragon, Manchester M3 2JA

061-833 0427